

## SETC-v1.0 Binder — Proposed Table of Contents (Fixed Order)

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Symbiosis Education, Training & Certification Binder (SETC-v1.0)

Version, date, authorship, dependency note: “Framework v1.0a is canonical.”

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# SETC Part I — Chapter 1

## Purpose, Scope, and Audience (Normative)

### 1.0 Purpose

1. The Symbiosis Education, Training & Certification Binder v1.0 (SETC-v1.0) defines the **mandatory education, competency, and certification system** for humans who operate, build, govern, audit, or instruct Symbiosis-compliant hybrid human–AI systems.
2. SETC-v1.0 exists to ensure that any Symbiosis deployment has **verifiable human-side competence** commensurate with its autonomy bands, regret boundaries, economic circuit controls, and governance obligations.
3. SETC-v1.0 SHALL be treated as a **first-class binder** that sits alongside Framework v1.0a and references Framework v1.0a as canonical for all primitives, metrics, and normative rules. Framework v1.0a defines Symbiosis as an implementable proto-standard with explicit layers, bounded autonomy, and auditable lineage; SETC operationalizes the human qualification layer required to implement that standard safely.
4. SETC-v1.0 SHALL enable three outcomes:
  - a. **Baseline literacy** in Symbiosis architecture, governance, and metrics for all roles.
  - b. **Role-specific applied competence** for Operators, Practitioners, Auditors/Governance Leads, and Instructors, aligned to the Framework’s role model and certification doctrine.
  - c. **Regulator- and enterprise-defensible evidence** that autonomy rights, approvals, and audit authority are earned, bounded, and periodically re-validated.
5. SETC-v1.0 is **normative**. All requirements use MUST/SHALL/MAY with testable pass criteria, and are subject to the Specification Quality Contract (SQC). Marketing tone and speculative framing are prohibited.

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### 1.1 Scope

#### 1.1.1 Systems and deployments covered

1. SETC applies to any deployment claiming Symbiosis compliance where:
  - a. a human (H) originates Structured Intent and remains the sovereign regret owner,
  - b. the Symbiosis Engine (E) decomposes Intent into Task Graphs (TG) and governs execution,

- c. synthetic agents (A) execute TG nodes under Machine Collaboration Protocol (MCP) contracts, and
  - d. the Governance Layer (G), including the Governance Kernel, enforces constraint vectors, risk classes, autonomy ceilings, and economic admissibility.
- 2. SETC scope is therefore **multi-sectoral and deployment-agnostic**, and SHALL be used wherever the Framework is implemented in production, sandbox, or regulated contexts.

### 1.1.2 What SETC standardizes

SETC standardizes the human-side requirements that the Framework assumes but does not fully teach, including:

1. **Role tracks and progression model** with explicit prerequisites tied to autonomy bands and governance duties.
2. **Foundation curriculum (F-Layer)** that all roles MUST complete, covering:
  - a. Four-Layer Architecture literacy and boundary duties,
  - b. Governance Kernel literacy and constraint supremacy,
  - c. Canonical metrics literacy (SI, HSS v2.0, SCP, CI, RB v2, AB0–AB3) at the level required for correct interpretation and use, without redefining them, and
  - d. 10-Stage Engine literacy and lineage interpretation.
3. **Applied competence (A-Layer)** per role track, including deterministic lab standards and observable behaviors for:
  - a. Structured Intent formation and constraint drafting,
  - b. Task Graph design and admissibility reasoning,
  - c. AB/RB checkpoint execution and approval discipline,
  - d. Economic circuit budgeting and saturation/latency handling, and
  - e. Drift vs Decay diagnosis and remediation routing.
4. **Scenario and lab bank standards (S-Layer)** that define canonical scenario templates, difficulty bands, and evaluation rules.
5. **Exams, rubrics, certification issuance, and recertification rules (C-Layer)**, aligned to the Framework's validation and certification protocol. Recertification cadence and incident-triggered revalidation MUST remain compatible with the Framework's requirements.
6. **Instructor accreditation and program governance** to prevent certification drift, abuse, or incentive-gaming.

### 1.1.3 Out of scope

1. SETC SHALL NOT be interpreted as:
  - a. a replacement for Framework v1.0a,

- b. a redefinition or alternative weighting of canonical metrics,
    - c. a sectoral legal standard (sector overlays remain in Framework Appendix K and organizational policy), or
    - d. a vendor-specific training program.
  - 2. SETC does not claim to eliminate risk or human error. It claims to make **human competence explicit, testable, and governance-bound**, thereby enabling Framework compliance.
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## 1.2 Intended Audience

SETC is written for a multisectoral readership that maps directly to the Framework's reader model. The following primary personas SHALL be assumed:

1. **Operators / Symbiotes (O-Track).**  
Humans who originate intent, supervise execution, perform AB2+ approvals only when certified, and retain regret ownership.
2. **Practitioners / Hybrid Intelligence Architects (P-Track).**  
Designers, engineers, analysts, and workflow architects who construct TGs, constraints, agent suites, and MCP contracts.
3. **Auditors / Governance Leads / Safety Owners (G-Track).**  
Internal or external reviewers who validate constraint vectors, AB/RB ceilings, lineage evidence, and incident response conformance.
4. **Instructors / Certifiers (I-Track).**  
Authorized educators responsible for delivering SETC curricula, administering labs/exams, and maintaining scoring integrity.

Each chapter of SETC SHALL be usable independently by its primary audience, but all cross-references to Framework v1.0a SHALL be treated as binding.

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## 1.3 Reader Contract for SETC (binding on use)

By adopting, teaching from, or certifying under SETC-v1.0, the reader and/or deploying organization SHALL accept:

1. **Canon obedience.**  
All terms, metrics, and state machines referenced in SETC are controlled by Framework v1.0a (canonical metrics in Part III only). Local synonyms or redefinitions are prohibited unless explicitly marked as non-canonical deployment extensions.

2. **Earned autonomy discipline.**

No human SHALL be granted AB-rights above their certification tier. Certification is a gating precondition for autonomy promotion and approval authority.

3. **Non-punitive covenant adherence.**

Any human-side metric instrumentation (HSS/SCP-related assessments or telemetry) SHALL be used only for safety, training, and capacity calibration, and SHALL NOT be used for employment discipline or coercive ranking.

4. **Auditability.**

Training artifacts, lab results, and exam outcomes SHALL be recorded as auditable evidence tied to role, tier, and AB ceiling. Recertification triggers SHALL be enforced after governance/kernel updates or incidents, as specified in Framework validation doctrine.

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## **Education-Binder SQC Gate Check (Chapter 1)**

**Gate 1 — Layer Integrity: PASS**

Chapter frames SETC as human-side competency layer aligned to H/E/A/G boundaries; no layer bypass or role confusion.

**Gate 2 — Canonical Metrics Non-Redefinition: PASS**

Metrics (SI, HSS v2.0, SCP, CI, RB v2, AB) are referenced only as canonical and not redefined.

**Gate 3 — Constraint Precedence + Threshold Explicitness: PASS**

Constraint supremacy and governance-set thresholds are stated as binding; no implicit defaults introduced.

**Gate 4 — Mechanistic Testability: PASS**

All clauses are implementable (scope, standardization targets, contract terms) and testable through program governance.

**Gate 5 — Lineage Recoverability: PASS**

Scope and purpose require auditable training/cert evidence tied to lineage expectations; no missing reconstruction hooks.

**Gate 6 — Drift vs Decay Typing: PASS**

Scope includes required literacy/competence in Drift vs Decay diagnosis without redefining doctrine.

**Gate 7 — Abuse / Incentive Hardening: PASS**

Reader contract enforces non-punitive covenant and anti-gaming posture.

## Gate 8 — Normative Voice Consistency: PASS

All statements use MUST/SHALL/MAY; no marketing or speculative phrasing.

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# SETC Part I — Chapter 2

## Certification Philosophy and Invariants (Normative)

### 2.0 Purpose of Certification

1. The SETC certification program defines the **minimum human-side competence required** to safely and defensibly operate within Symbiosis-compliant systems.
  2. Certification exists because Symbiosis treats human–AI collaboration as an engineered control system with bounded autonomy, explicit constraints, and auditable lineage. Human competence is a first-class control surface and **MUST** be governed accordingly.
  3. SETC certification **SHALL** be used to:
    - a. prevent unqualified autonomy escalation,
    - b. ensure correct governance and economic discipline at runtime, and
    - c. provide regulator- and enterprise-defensible evidence of safe adoption and scale.
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### 2.1 Core Certification Philosophy

#### 2.1.1 Earned autonomy, not enthusiasm

1. Autonomy in Symbiosis is granted only through **earned, revocable rights**. SETC certification is the normative mechanism for granting those rights to humans.
2. No individual **SHALL** be assigned approval authority or autonomy rights above their certified tier. Certification **MUST** precede permission to perform AB-gated actions or RB-proximate work.
3. Certification tiers **SHALL** map to autonomy ceilings, consistent with the Framework's Validation & Certification Protocol. SETC operationalizes this mapping for education purposes without redefining any AB/RB doctrine.

#### 2.1.2 Risk-proportional competence

1. Required competence **SHALL** scale with:
  - a. **Regret Boundary proximity** and irreversibility class,
  - b. **Autonomy Band** rights requested,
  - c. domain risk class and governance overlays, and



- d. economic and concurrency load.
- 2. High-autonomy or RB-proximate deployments **MUST** strengthen human qualification requirements proportionally, not loosen them.

### 2.1.3 Deterministic, testable competence

- 1. Certification **SHALL** be based on **observable performance** against deterministic rubrics and scenario trials, not self-attestation.
- 2. Every certification level **MUST** require successful completion of:
  - a. fixed Foundation Curriculum (F-Layer),
  - b. track-specific Applied Competence (A-Layer),
  - c. scenario/lab evaluation (S-Layer) under standardized templates, and
  - d. a bounded theory + practical exam (C-Layer).
- 3. Pass criteria **MUST** be explicit, machine-recordable, and auditable, enabling lineage-tethered evidence for AB rights and governance review.

### 2.1.4 Canon obedience and non-invention

- 1. SETC training **SHALL** teach canonical primitives exactly as defined in Framework v1.0a.
- 2. SETC **SHALL NOT**:
  - a. redefine SI, HSS v2.0, SCP, CI, RB v2, AB0–AB3, Economic Circuit variables, or Governance Kernel rules,
  - b. introduce alternate weightings, thresholds, or shadow metrics, or
  - c. create new autonomy promotion rules.
- 3. Any local extensions **MAY** be taught only if explicitly labeled as **non-canonical deployment overlays** and shown to be compatible with v1.0a constraints.

### 2.1.5 Non-punitive human metrics covenant

- 1. Human-side metrics literacy (HSS/SCP/CI-relevant interpretation or assessments) **SHALL** be taught and used strictly for safety, training calibration, and capacity alignment.
- 2. SETC certification programs **MUST** enforce a **human-metrics firewall**: HSS/SCP-derived telemetry **SHALL NOT** be used for employment discipline, coercive ranking, or punitive governance.

### 2.1.6 Anti-gaming design

1. Certification SHALL be designed so that **gaming the test does not produce unsafe autonomy rights**.
  2. Program operators MUST include:
    - a. scenario variance and replay resistance,
    - b. rubric-anchored grading,
    - c. audit sampling of practical outcomes, and
    - d. revocation pathways for demonstrated non-compliance.
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## 2.2 Certification Invariants (Binding)

The following invariants MUST hold for all SETC content, assessments, and certification decisions:

1. **Layer Integrity invariant.**

Training MUST preserve the Four-Layer Architecture and boundary duties. No assessment SHALL imply that agents or engines originate sovereign intent, set constraints, or grant autonomy independently of governance and certified humans.
2. **Constraint supremacy invariant.**

Competence includes correct drafting and enforcement of explicit constraint vectors. Hard constraints SHALL override optimization goals in all labs, scenarios, and exams.
3. **Lineage recoverability invariant.**

Certified individuals MUST demonstrate the ability to read, validate, and produce lineage-complete Symbiosis episodes, including intent, constraints, TG, EC state, and AB/RB transitions.
4. **Earned autonomy gating invariant.**

AB promotions and approval rights MUST require:
  - a. valid SETC tier  $\geq$  requested AB ceiling, and
  - b. canonical promotion prerequisites (SI stability, vital signs green, HSS readiness, SCP headroom, recovery readiness) as evidenced in lineage. SETC SHALL teach and test this gating but SHALL NOT alter it.
5. **Drift vs Decay discipline invariant.**

Certification MUST include the ability to distinguish and respond to Semantic Drift vs Operational Decay, per Framework taxonomy, without conflation.
6. **Economic admissibility invariant.**

Certified individuals MUST demonstrate budget framing and Economic Circuit compliance, including CS/QL-aware admissibility reasoning where relevant.

7. **Revocability and recertification invariant.**

Certification SHALL be time-bounded and incident-sensitive. Rights MUST be suspended or recertification triggered after major governance/kernel updates, severe incidents, or verified misuse, consistent with Framework certification doctrine.

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## 2.3 Evidence Standards for Certification Decisions

1. Every certification decision MUST be supported by auditable evidence including:
    - a. completion records for required curriculum units,
    - b. signed lab/scenario scoring sheets,
    - c. exam results with item-level traceability, and
    - d. AB ceiling issuance record linked to the holder.
  2. Evidence artifacts SHALL be retained under Governance policy and MUST be available for audit and appeals under Part I, Chapter 4 of SETC.
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## Education-Binder SQC Gate Check (Chapter 2)

**Gate 1 — Layer Integrity:** PASS

Four-Layer boundaries preserved; certification framed as human-side control surface with no cross-layer duty reassignment.

**Gate 2 — Canonical Metrics Non-Redefinition:** PASS

All metrics and autonomy rules referenced as canon; no reweighting or new definitions introduced.

**Gate 3 — Constraint Precedence + Threshold Explicitness:** PASS

Constraint supremacy is binding; thresholds and promotion prerequisites are explicitly governance-set and canonical.

**Gate 4 — Mechanistic Testability:** PASS

Requirements for tiers, evidence, labs, rubrics, anti-gaming, and revocation are observable and auditable.

**Gate 5 — Lineage Recoverability:** PASS

Lineage competence and evidence retention are mandatory and tied to certification outcomes.

**Gate 6 — Drift vs Decay Typing:** PASS

Certification includes drift vs decay capability without redefining taxonomy.

**Gate 7 — Abuse / Incentive Hardening:** PASS

Non-punitive covenant and anti-gaming requirements explicitly enforced.

## Gate 8 — Normative Voice Consistency: PASS

All clauses use MUST/SHALL/MAY; no speculative or promotional modality.

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# SETC Part I — Chapter 3

## Role Tracks and Progression Model (Normative)

### 3.0 Purpose

1. This chapter defines the four SETC role tracks and the deterministic progression model that governs:
    - a. entry prerequisites,
    - b. required curriculum layers (F/A/S/C),
    - c. certification tier issuance, and
    - d. the autonomy-band (AB) ceilings and approval rights each tier authorizes.
  2. Role assignment and progression are safety controls. Literacy and certification are prerequisite gates for autonomy, not optional professional development.
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### 3.1 Role Tracks (SETC Personas)

The SETC program includes exactly four tracks, aligned to Framework v1.0a role responsibilities.

#### 3.1.1 Operator Track (O-Track)

1. **Primary function:** operate Symbiosis episodes as regret owners and runtime supervisors.
2. **Core duties include:**
  - a. originating Structured Intent and constraint vectors,
  - b. interpreting dry-runs and lineage traces,
  - c. executing AB-gated approvals within their certified ceiling, and
  - d. detecting and escalating drift/decay signatures.
3. Operators SHALL NOT design TGs for production use or author governance overlays unless separately certified under P-Track or G-Track.

#### 3.1.2 Practitioner Track (P-Track)

1. **Primary function:** design, build, and maintain Symbiosis workflows and agentic systems under Governance rules.
2. **Core duties include:**
  - a. Task Graph (TG) structuring and admissibility reasoning,
  - b. constraint drafting support and validation,

- c. Economic Circuit budgeting and routing configuration, and
- d. MCP contract selection and integration within AB ceilings.
- 3. Practitioners MAY operate as Operators only if they also meet O-Track certification requirements.

### 3.1.3 Auditor / Governance Track (G-Track)

- 1. **Primary function:** ensure deployment compliance with the Governance Kernel, sector overlays, and validation protocol.
- 2. **Core duties include:**
  - a. lineage verification and replay,
  - b. AB/RB ceiling audit and enforcement,
  - c. approval of constraint vectors, risk-class mappings, and adoption bridges where authorized, and
  - d. incident classification and recovery gating.
- 3. G-Track holders act as Governance-authorized reviewers and SHALL be held to the highest recertification and evidence standards.

### 3.1.4 Instructor Track (I-Track)

- 1. **Primary function:** deliver SETC curricula and administer certification with scoring integrity.
- 2. **Core duties include:**
  - a. course delivery per fixed TOC and canon,
  - b. lab/scenario administration under standardized conditions,
  - c. rubric-based grading and evidence recording, and
  - d. material updates under Slow-Core change rules.

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## 3.2 Certification Tiers and Authorized Autonomy Ceilings

- 1. Framework v1.0a defines four certification tiers, each tied to a maximum authorized AB ceiling. SETC SHALL teach and enforce this mapping without alteration.
- 2. **Canonical tier → AB ceiling mapping (binding):**
  - a. **Cert-0 (Foundational):** authorizes **AB0** only.
  - b. **Cert-1 (Internal Delegate):** authorizes up to **AB1**.
  - c. **Cert-2 (Conditional Delegate):** authorizes up to **AB2** within Safe Harbors.
  - d. **Cert-3 (Co-Agency Pocket):** authorizes up to **AB3** in RC-approved reversibility models.
- 3. **Rights coupling rule (normative):** a human MAY operate at AB<sub>k</sub> only if all three canonical conditions hold:
  - a. Governance has issued a valid certificate tier  $\geq k$ ,
  - b. the human's current HSS tier supports AB<sub>k</sub> eligibility, and
  - c. SCP indicators show sufficient headroom for AB<sub>k</sub> concurrency.
 Violation of any condition SHALL trigger immediate AB demotion and recertification

review.

4. **Dual-gate and stability precedence requirements:**

- a. SI “green” is necessary but not sufficient for  $AB \geq 2$  rights; HSS readiness and SCP headroom gates SHALL be met before granting  $AB \geq 2$ .
- b. If SI and stability vital signs disagree, stability SHALL control and block promotion.

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### 3.3 Progression Model (Deterministic)

#### 3.3.1 Layered progression

1. All tracks SHALL progress through four layers, in order:
  - a. **F-Layer (Foundation Literacy)** — mandatory baseline for any in-loop role.
  - b. **A-Layer (Applied Competence)** — track-specific skills and labs.
  - c. **S-Layer (Scenario Testing)** — standardized scenario trials.
  - d. **C-Layer (Certification Exams)** — theory + practical.
2. No learner SHALL attempt A-Layer, S-Layer, or C-Layer content without passing the prerequisite layer. This rule is binding across all tracks.

#### 3.3.2 Pilot-based evidence progression

1. Certification issuance and promotion SHALL be evidence-anchored by the Framework’s mandatory pilot sequence, which SETC adopts as the human qualification pathway.
2. **Mandatory pilots (binding order):**
  - a. **P0 — Baseline Assisted Pilot (AB0 only).**
  - b. **P1 — Engine-Augmented Pilot (AB1 standard; AB2 readiness testing only).**
  - c. **\*\*P2 — Bridge-Ready Pilot (AB2 inside Safe Harbors; AB3 trials prohibited unless explicitly authorized).**
3. Each pilot produces the auditable evidence base for:
  - a. SI baseline stability,
  - b. HSS/SCP readiness signals,
  - c. lineage completeness,
  - d. constraint hygiene, and
  - e. drift/decay detection functionality.

#### 3.3.3 Promotion conditions

1. Promotion from Cert-k to Cert-(k+1) SHALL occur only when:
  - a. all required SETC layers for the target tier are passed,
  - b. pilot evidence satisfies canonical promotion prerequisites, and

- c. Governance affirms rights coupling compliance.
2. Promotion **MUST NOT** be based on managerial preference, throughput KPIs, or self-attestation.

#### **3.3.4 Cross-track rules**

1. A learner **MAY** hold multiple track certifications. Rights and duties **SHALL** be additive but never exceed the highest tier held.
  2. A learner who holds P-Track or G-Track certification **MAY** serve as an Operator **only** if they also meet O-Track requirements for the relevant tier.
  3. Instructor Track certification **SHALL** be granted only to individuals who already hold the highest practical tier relevant to the cohorts they teach (minimum Cert-2 for teaching AB2 content, minimum Cert-3 for any AB3 content). This is a safety and integrity requirement.
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#### **3.4 Non-Punitive, Anti-Gaming Constraints on Progression**

1. HSS and SCP are licensing readiness instruments, not performance ratings. SETC progression **SHALL** treat them as diagnostic signals with strict non-punitive controls.
  2. Any attempt to pressure learners to inflate HSS/SCP, or to use human metrics for compensation or discipline, **SHALL** be classified as an Abuse Event and **MUST** trigger governance review.
  3. Certification authority **MUST** implement anti-gaming measures including scenario variance, audit sampling of practical work, and revocation pathways for misuse. This requirement is binding at all tiers.
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## **Education-Binder SQC Gate Check (Chapter 3)**

### **Gate 1 — Layer Integrity: PASS**

Roles and duties map to H/E/A/G boundaries; no bypass implied.

### **Gate 2 — Canonical Metrics Non-Redefinition: PASS**

AB, RB, SI, HSS v2.0, SCP, CI referenced only as canon; no redefinition or reweighting.

**Gate 3 — Constraint Precedence + Threshold Explicitness: PASS**

Constraint supremacy and governance-set thresholds/promotion gates stated as binding; no implicit thresholds added.

**Gate 4 — Mechanistic Testability: PASS**

Progression prerequisites, pilots, promotion rules, and cross-track conditions are verifiable via artifacts and governance records.

**Gate 5 — Lineage Recoverability: PASS**

Pilot evidence and certification decisions explicitly require lineage completeness and replayability.

**Gate 6 — Drift vs Decay Typing: PASS**

Roles and progression include required drift/decay literacy without altering taxonomy.

**Gate 7 — Abuse / Incentive Hardening: PASS**

Non-punitive covenant and anti-gaming controls are explicit and enforceable.

**Gate 8 — Normative Voice Consistency: PASS**

MUST/SHALL/MAY used precisely; no promotional or speculative tone.

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## SETC Part I — Chapter 4

### Program Governance (Integrity, Anti-Gaming, Appeals) (Normative)

#### 4.0 Purpose

1. This chapter specifies the mandatory governance model for SETC-v1.0, including:
    - a. program authorities and responsibilities,
    - b. integrity controls and anti-gaming mechanisms,
    - c. evidence and audit requirements,
    - d. recertification and revocation triggers,
    - e. appeals and remediation pathways, and
    - f. change control for SETC content.
  2. SETC governance SHALL be interpreted as an extension of the Framework's doctrine that **governance is code, versioned, enforceable, and auditable**, applied here to the education and certification subsystem.
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#### 4.1 Governance Authorities and Separation of Powers

1. Every Symbiosis deployment claiming SETC compliance MUST designate the following authorities, whether internal or via accredited third parties:



a. **SETC Program Owner (SPO).**

Holds ultimate responsibility for program integrity and conformance to Framework v1.0a. The SPO SHALL approve instructor licensing, certification issuance policy, and revocation actions.

b. **Certification Authority (CA).**

Administers exams and scenario trials, publishes rubrics, maintains evidence records, and issues tier certificates. The CA MUST be organizationally independent from delivery teams whose throughput is affected by autonomy ceilings.

c. **Governance Lead / Audit Reviewer (GL).**

Validates that issued certificates match AB rights and that AB promotions satisfy canonical multi-gate prerequisites (SI stability, vital signs green, HSS readiness, SCP headroom, recovery readiness).

2. No single role SHALL simultaneously control:

- a. curriculum delivery,
- b. exam/scenario scoring, and
- c. certification issuance.

This separation is mandatory to prevent incentive coupling between performance KPIs and autonomy rights. It is required by the Framework's abuse and incentive-hardening posture.

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## 4.2 Integrity and Anti-Gaming Controls

### 4.2.1 General anti-gaming requirements

1. SETC programs MUST be designed such that **test-gaming cannot yield unsafe autonomy rights**. This requirement is binding and non-waivable.
2. The Certification Authority SHALL implement at minimum:
  - a. **scenario variance and replay resistance** (multiple equivalents per difficulty band),
  - b. **rubric-anchored grading** with audit trails,
  - c. **randomized audit sampling** of practical artifacts and lineage traces, and
  - d. **instructor conflict-of-interest declarations** per cohort.
3. Any evidence of coaching to the test in a way that bypasses competence (e.g., memorizing fixed answers for safety gates) SHALL be classified as an Integrity Event and MUST trigger cohort review and potential suspension of certificates issued in that window.

### 4.2.2 Canonical-metric misuse defense

1. Human-side metrics referenced in SETC (HSS v2.0, SCP, CI) are **safety telemetry only** and SHALL NOT be used for HR ranking, compensation, disciplinary action, or coercive profiling. Any such use constitutes non-compliance.
  2. SETC governance MUST enforce a **human-metrics firewall**:
    - a. access to telemetry is role-restricted,
    - b. retention windows are governance-defined, and
    - c. visibility is opt-in where required by local law and policy.These controls are mandatory because Goodharting human metrics directly corrupts autonomy gating safety.
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### 4.3 Evidence, Auditability, and Lineage-Tethered Records

1. Every certification decision MUST be supported by auditable evidence sufficient to reconstruct:
    - a. curriculum completion,
    - b. lab and scenario scoring,
    - c. exam outcomes, and
    - d. the AB ceiling authorized.
  2. Evidence artifacts SHALL be stored in Compliance Memory (or governance-approved equivalent) and MUST be retrievable for audit, incident forensics, and appeals. This mirrors the Framework's requirement that actions be reconstructable to intent, constraints, TG, AB/RB state, and economic pass.
  3. At minimum, the evidence set MUST include:
    - a. signed learner identity and role-track enrollment record,
    - b. F/A/S layer completion attestations,
    - c. scenario/lab rubric sheets with grader ID, timestamp, and artifact pointers,
    - d. exam score reports with blueprint traceability, and
    - e. certificate issuance record with tier, expiry, and authorized AB ceiling.
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### 4.4 Recertification, Suspension, and Revocation

1. SETC certificates are **revocable autonomy licenses**, not permanent achievements.
2. Recertification MUST be triggered when any of the following occur:
  - a. a major Governance Kernel, AB/RB, or canonical-metric update is adopted,
  - b. a serious Integrity Event is recorded,
  - c. a safety incident at S2+ (per Framework incident ladder) implicates the holder's actions, or
  - d. the certificate reaches its time-bounded expiry window.

3. The Governance Lead SHALL verify, prior to any AB promotion or renewal, that canonical prerequisites are satisfied and evidenced in lineage.
  4. Suspension or revocation MUST occur when:
    - a. the holder operates beyond their certified AB ceiling,
    - b. lineage indicates repeated constraint violations,
    - c. the holder falsifies or withholds required evidence, or
    - d. misuse of human-side metrics is substantiated.Revocation actions SHALL be logged with rationale and timestamp for audit.
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#### **4.5 Appeals and Remediation Pathways**

1. SETC programs MUST provide a formal appeals process for certification outcomes, suspensions, or revocations.
  2. Appeals SHALL be limited to:
    - a. scoring or rubric application errors,
    - b. identity or evidence mismatches,
    - c. procedural violations (e.g., conflict-of-interest breach), or
    - d. newly surfaced evidence that was unavailable at decision time.
  3. Appeals SHALL NOT allow:
    - a. redefinition of canonical metrics,
    - b. dispute of Governance-set AB ceilings or risk overlays, or
    - c. bypass of curriculum prerequisites.
  4. The Certification Authority MUST adjudicate appeals within a governance-defined window, using only auditable artifacts. Appeal outcomes MUST be recorded in the evidence vault and may result in:
    - a. score correction,
    - b. mandatory re-trial of specific scenarios,
    - c. full re-examination, or
    - d. confirmation of the original decision.
- 

#### **4.6 SETC Change Control (Slow-Core Discipline)**

1. SETC content is a controlled specification. Any modification to SETC chapters, rubrics, exams, or scenario standards MUST follow change control consistent with the Framework's rule that changes to canonical definitions or SQC require explicit governance approval and delta logging.
2. SETC change proposals MUST include:
  - a. the specific TOC location affected,

- b. rationale tied to a Framework delta or field evidence,
    - c. backward-compatibility impact on existing certificates, and
    - d. updated exams/rubrics/scenarios where needed.
  - 3. No change SHALL be enacted that:
    - a. alters canonical metric definitions or weights, or
    - b. conflicts with Framework v1.0a invariants.
  - 4. All enacted changes MUST be recorded in SETC Appendix H (Program Change Log) with version and effective date.
- 

## Education-Binder SQC Gate Check (Chapter 4)

### **Gate 1 — Layer Integrity: PASS**

Governance roles preserve H/E/A/G boundaries and do not reassign canonical duties.

### **Gate 2 — Canonical Metrics Non-Redefinition: PASS**

SI/HSS v2.0/SCP/CI/RB/AB referenced only as canon; no formulas, weights, or alternate gates introduced.

### **Gate 3 — Constraint Precedence + Threshold Explicitness: PASS**

Constraint supremacy and governance-set thresholds/ceilings are enforced; no implicit defaults added.

### **Gate 4 — Mechanistic Testability: PASS**

Integrity controls, evidence sets, recertification triggers, and appeals rules are operationally testable and enforceable.

### **Gate 5 — Lineage Recoverability: PASS**

Certification evidence is lineage-tethered and reconstructable for audit/appeals.

### **Gate 6 — Drift vs Decay Typing: PASS**

Governance ties recertification to incidents and recovery doctrine without redefining drift/decay taxonomy.

### **Gate 7 — Abuse / Incentive Hardening: PASS**

Anti-gaming, separation of powers, and non-punitive human-metric firewall are explicit.

### **Gate 8 — Normative Voice Consistency: PASS**

All requirements use MUST/SHALL/MAY correctly; no marketing or speculative tone.

---

## SETC Part II — Chapter 5

## **Symbiosis Fundamentals (F-Layer) (Normative)**

### **5.0 Purpose**

1. This chapter establishes the mandatory foundational literacy for all SETC tracks. It defines the minimum shared model of Symbiosis as an engineered, governed form of hybrid human–AI intelligence.
  2. The content in this chapter SHALL align to Framework v1.0a foundations, including:
    - a. Symbiosis as a deterministic proto-standard for hybrid systems, not a product or model,
    - b. the four-layer separation of concerns (Human, Engine, Agentic, Governance),
    - c. the irreducible axioms (Human Primacy, Constraint Supremacy, Layered Autonomy, Auditability/Lineage),
    - d. the replacement of ad-hoc prompting and “HITL theater” with System-in-the-Loop coordination, and
    - e. non-bypass invariants between layers.
  3. Canonical metric definitions and weightings (SI, HSS v2.0, SCP, CI, RB, AB) are taught conceptually here but SHALL NOT be redefined; formal definitions remain in Framework Part III.
- 

### **5.1 Learning Objectives (Required)**

Upon completion, the learner SHALL be able to:

1. State what Symbiosis is and is not, including why Symbiosis is a systems standard rather than “prompting best practices.”
  2. Explain the Shadow AI failure mode and why unguided adoption is structurally unsafe and non-auditable.
  3. Describe the four-layer architecture and the exclusive duties of each layer.
  4. Recite the binding axioms, with emphasis on Human Primacy and Constraint Supremacy as non-negotiable invariants.
  5. Explain why autonomy is layered (AB0–AB3) and regret boundaries (RB) gate reversibility, without quoting or inventing thresholds.
  6. Identify a layer-bypass violation in a simple scenario and specify the correct remediation path.
- 

### **5.2 Core Concepts (Canonical Narrative)**

#### **5.2.1 What Symbiosis is**

1. Symbiosis is a **structured, intentional, and governed form of human–AI collaboration** engineered to remain productive and adaptive while preserving human primacy, transparency, and safety.
2. Symbiosis is not:
  - a. generic AI tool use,
  - b. automation without constraints, or
  - c. a single model, agent, or vendor pattern.
3. A system is symbiotic only when hybrid cognition is made **governable by architecture first**, with explicit layers, bounded autonomy, economic admissibility, and lineage.

#### 5.2.2 Why Symbiosis is necessary (Shadow AI → System-in-the-Loop)

1. Ad-hoc AI deployments fail structurally because intent is underspecified, constraints are implicit, autonomy is unbounded, and outcomes cannot be reconstructed.
2. This failure mode is named **Shadow AI**: unofficial or non-governed use that increases risk while hiding accountability.
3. Inserting a “human review step” (classic HITL) does not fix the structure; it frequently produces oversight overload, implicit constraints, and autonomy creep without a state machine.
4. Symbiosis replaces HITL with **System-in-the-Loop hybrid intelligence**, in which coordination software and governance enforce boundaries continuously, not after the fact.

#### 5.2.3 The four-layer stack (minimum viable hybrid system)

1. Symbiosis requires four non-optional layers:
  - a. **Human Layer (H)**: origin of sovereign intent and meaning; bearer of regret and accountability.
  - b. **Symbiosis Engine / Coordination Layer (E)**: deterministic coordinator that normalizes intent, consolidates constraints, performs economic admissibility, compiles TGs, and records lineage.
  - c. **Agentic Layer (A)**: bounded capability modules executing TG nodes under contracts and autonomy ceilings; no goal authority.
  - d. **Governance Layer (G/GK)**: sets and enforces constraints; owns AB/RB transitions; preserves auditability.
2. **Invariant — No Layer Bypass**:
  - E SHALL not originate intent.
  - A SHALL not modify governance.
  - G SHALL not execute tasks.
  - Humans SHALL not be bypassed at RB checkpoints.

#### 5.2.4 The axioms (irreducible invariants)

1. The Framework fixes binding axioms that every deployment and every educational artifact **MUST** preserve.
2. At minimum, all learners **MUST** internalize:
  - a. **Human Primacy**: humans are the sole origin of meaning and intent; systems that displace this are non-symbiotic.

- b. **Constraint Supremacy**: hard constraints override optimization and proposals at all stages.
  - c. **Layered Autonomy**: autonomy is graduated and governed, not binary.
  - d. **Transparency/Auditability by construction**: consequential reasoning and actions must be traceable in lineage.
- 3. Any workflow or teaching that violates these axioms SHALL be treated as out of scope for Symbiosis competence.

### 5.2.5 Primitives you must recognize (conceptual only)

Learners SHALL be able to identify, at a high level, the following primitives and their roles in the stack, without asserting formulas or thresholds:

1. **Alignment Surface (AS) → Structured Intent Object (I)**: how human intent enters the system.
  2. **Constraint Vector (C)**: legal/safety/economic boundaries binding intent, TGs, and contracts.
  3. **Budget Envelope / Economic Circuit (B/EC)**: economic admissibility gate prior to execution.
  4. **Task Graph (TG)**: typed plan of nodes and dependencies produced by E.
  5. **Autonomy Bands (AB) and Regret Boundary (RB)**: autonomy ceiling and reversibility gate per node.
  6. **Context Lineage (L)**: immutable evidence spine tying actions to intent, constraints, budgets, and state.
- 

### 5.3 Required Readings

1. Framework v1.0a:
    - a. Chapter 1 — Purpose, Scope, Reader Contract (sections on Shadow AI and HITL fallacy).
    - b. Chapter 2 — Ontological Axioms & Primitives (axioms and non-bypass boundaries).
    - c. Chapter 3 — Four-Layer Architecture (overview of the minimum stack).
    - d. Appendix L.3.1 narrative (layer duties and control/telemetry flows).
  2. Optional contrast (non-authoritative, aligned background):
    - a. v0.8 Phase model “Assisted → Coordinated Hybrid Intelligence” for intuition only.
- 

### 5.4 Labs (Foundation)

#### Lab 5-A — Shadow AI vs Symbiosis diagnosis (required)

1. Given two workflow descriptions (one ad-hoc prompting, one Symbiosis-typed), the learner SHALL:

- a. identify missing primitives (I/C/B/TG/AB/RB/L) in the Shadow AI case,
  - b. label at least two layer-bypass violations, and
  - c. propose a minimal Symbiosis-compliant remediation (adding the missing layers/primitives).
2. All remediation proposals MUST preserve Human Primacy and Constraint Supremacy.

### **Lab 5-B — Layer boundary mapping (required)**

1. Given a short scenario, the learner SHALL map each action to exactly one layer and justify why it cannot be delegated to another layer.
  2. Any ambiguous mapping MUST be resolved using the No-Layer-Bypass invariant.
- 

## **5.5 Pass Criteria**

A learner PASSES Chapter 5 if they:

1. Achieve  $\geq 80\%$  on the Chapter 5 theory check, covering objectives 5.1(1)–(6).
  2. Complete Lab 5-A and Lab 5-B with:
    - a. zero canonical-axiom violations, and
    - b. correct identification of at least two bypass or missing-primitive failures per case.
  3. Do not introduce any non-canonical metric definitions or thresholds in written responses.
- 

## **Education-Binder SQC Gate Check (Chapter 5)**

### **Gate 1 — Structural Fidelity: PASS**

Chapter aligns to SETC TOC location and shared F-Layer role.

### **Gate 2 — Terminology Accuracy: PASS**

Definitions and primitives match canon; older-draft material used only as aligned intuition.

### **Gate 3 — Canonical Metrics Rule: PASS**

Metrics are referenced conceptually only; no formulas, weights, or thresholds introduced.

### **Gate 4 — Normative Voice: PASS**

All requirements use MUST/SHALL/MAY precisely; no marketing tone.

### **Gate 5 — Change Spec Alignment: PASS**

No deviation from v1.0a axioms, layer duties, or non-bypass invariant.

### **Gate 6 — Cross-Reference Integrity: PASS**

Readings point to correct canonical locations and Appendix L narrative.



## Gate 7 — Testability: PASS

Objectives, labs, and pass criteria are operational and auditable.

## Gate 8 — Completeness: PASS

Foundation coverage sufficient for downstream chapters 6–10.

---

# SETC Part II — Chapter 6

## Architecture and Layer Model (F-Layer) (Normative)

### 6.0 Purpose

1. This chapter provides the mandatory architectural literacy required for all SETC tracks. It specifies how Symbiosis implements governable hybrid intelligence through a four-layer stack and fixed cross-layer flows.
  2. All architectural statements in this chapter SHALL align to Framework v1.0a Part II, Chapter 3 (Architecture Overview) and related boundary-duty clauses.
  3. Canonical metric definitions and autonomy math remain restricted to Framework Part III. This chapter references AB/RB, SI, HSS v2.0, SCP, and CI only as named canonical objects.
- 

### 6.1 Learning Objectives (Required)

Upon completion, the learner SHALL be able to:

1. Describe the **Four-Layer Architecture** and justify why all four layers are non-optional for Symbiosis compliance.
  2. State the **directional rules** of the stack (control down, telemetry up) and explain their safety and auditability purpose.
  3. Define, at a normative boundary level, what each layer **MUST** do and **MUST NOT** do.
  4. Identify **layer-bypass violations** and classify them as structural non-compliance.
  5. Trace a simple Symbiosis episode through the layers and name the mandatory cross-layer artifacts (Intent Object, Constraint Vector, Budget Envelope/Economic Pass, Task Graph, AB/RB state, Lineage).
- 

### 6.2 Canonical Four-Layer Architecture

#### 6.2.1 Stack composition (binding)

1. A Symbiosis-compliant system **MUST** implement exactly four layers:
  - a. **Human Layer (H)**
  - b. **Symbiosis Engine / Coordination Layer (E)**
  - c. **Agentic Layer (A)**
  - d. **Governance Layer (G)**
2. Removal, collapse, or informal substitution of any layer **SHALL** be classified as **Shadow AI collapse** and is structurally non-compliant.

#### 6.2.2 Directional flow rules (binding)

1. **Control MUST flow downward** from H and G through E to A. Human intent and governance constraints are upstream control signals.
2. **Telemetry MUST flow upward** from A through E to H and G. Execution state, lineage, and canonical metrics are upstream telemetry signals.
3. Any cross-layer flow that reverses these directions without explicit Governance authorization (e.g., Adoption Bridge conditions) **SHALL** be treated as a bypass violation.

#### 6.2.3 No-layer-bypass invariant (binding)

1. No layer **MAY** bypass an adjacent layer to invoke duties allocated elsewhere.
2. In particular:
  - a. Agents **MUST NOT** access humans or external tools except through E-bound contracts and MCP routes.
  - b. Governance **MUST NOT** originate intent; it only constrains and adjudicates it.
  - c. Humans **MUST NOT** dispatch autonomous agent tasks outside E except in explicitly governed Adoption Bridge cases.

---

### 6.3 Layer Definitions, Duties, and Boundaries

#### 6.3.1 Layer 1 — Human Layer (H)

1. **Definition:** The Human Layer is the biological component of the system and the exclusive origin of sovereign intent, meaning, and final accountability.
2. **Positive duties (H MUST):**
  - a. generate Structured Intent Objects (I) via Alignment Surfaces,
  - b. review transparency traces at all Regret Boundary crossings, and
  - c. retain kill-switch authority and final approval rights for high-regret actions.

3. **Boundary limits (H MUST NOT):**
  - a. delegate sovereign intent ownership to E or A,
  - b. approve beyond their certified AB ceiling, and
  - c. bypass Governance-set constraints.

#### 6.3.2 Layer 2 — Symbiosis Engine / Coordination Layer (E)

1. **Definition:** E is deterministic coordination logic. It does not originate goals or perform autonomous inference; it transforms intent into controlled execution.
2. **Canonical subcomponents (minimum set):** Intent Router, Planner/Hierarchical Decomposer, Context & Lineage Manager, Orchestrator, Economic Optimizer / Circuit Guard.
3. **Positive duties (E MUST):**
  - a. jointly evaluate I, C, B, AB, and RB,
  - b. reject or re-plan TGs that violate C or exceed B, and
  - c. prevent autonomy self-promotion, constraint mutation, or economic bypass by agents.
4. **Boundary limits (E MUST NOT):**
  - a. originate or mutate sovereign intent,
  - b. set governance policy or AB/RB thresholds, or
  - c. allow unregistered capability routes around MCP.

#### 6.3.3 Layer 3 — Agentic Layer (A)

1. **Definition:** A is a modular poly-agent ecosystem of bounded capability modules executing TG nodes under explicit contracts and AB ceilings.
2. **Positive duties (A MUST):**
  - a. execute TG nodes only via E-bound dispatch,
  - b. bind every action to an explicit contract, AB ceiling, active C vector, and economic cap within B.
3. **Boundary limits (A MUST NOT):**
  - a. originate intent,
  - b. modify constraints or governance rules,
  - c. self-promote AB, or
  - d. create back-channels that bypass E.

#### 6.3.4 Layer 4 — Governance Layer (G)

1. **Definition:** Governance is “code-as-boundary.” It compiles policy into constraints, defines risk classes, regulates AB transitions, and preserves auditability.

2. **Positive duties (G MUST):**
    - a. generate and version Governance constraints (C\_G),
    - b. define risk classes and admissibility regimes,
    - c. own AB/RB promotion/demotion rules and thresholds, and
    - d. require lineage retention sufficient for audit and forensics.
  3. **Boundary limits (G MUST NOT):**
    - a. execute TG nodes, or
    - b. originate human intent.
- 

## 6.4 Cross-Layer Artifacts (Recognition-Level)

Learners MUST recognize the following canonical artifacts and their layer ownership:

1. **Intent Object (I):** originated by H, normalized by E.
  2. **Constraint Vector (C = C<sub>o</sub> ∪ C\_G):** composed by H + G, enforced by E.
  3. **Budget Envelope / Economic Pass (B / EC):** set by H or org policy, enforced by E.
  4. **Task Graph (TG):** compiled and owned by E, executed by A.
  5. **Autonomy Band / Regret Boundary state (AB/RB):** thresholds owned by G, checkpointed through E, actioned by H.
  6. **Context Lineage (L):** recorded by E from A telemetry and H/G decisions; immutable for audit.
- 

## 6.5 Required Readings

1. Framework v1.0a:
    - a. Part II, Chapter 3 — Architecture Overview (sections 3.0–3.1).
    - b. Appendix A — Axioms: Separation of Concerns, No-Bypass rule.
  2. Optional aligned contrast (non-authoritative, intuition only):
    - a. v0.9 “Life of a Decision” trace example, for practice consistency.
- 

## 6.6 Labs (Foundation)

### Lab 6-A — Layer duty classification (required)

1. Given a 12–20 step workflow narrative, the learner SHALL:
  - a. assign each step to exactly one layer (H/E/A/G),
  - b. flag any step that violates a boundary limit, and
  - c. rewrite the workflow to remove bypass paths.
2. A rewrite PASS requires zero remaining bypass violations.

## Lab 6-B — Control/telemetry mapping (required)

1. For a provided TG excerpt with checkpoints, the learner SHALL produce:
    - a. a control-flow arrow map ( $H/G \rightarrow E \rightarrow A$ ), and
    - b. a telemetry-flow arrow map ( $A \rightarrow E \rightarrow H/G$ ), labeling the artifacts exchanged at each edge.
  2. PASS requires correct directional assignment for all edges.
- 

## 6.7 Pass Criteria

A learner PASSES Chapter 6 if they:

1. Achieve  $\geq 80\%$  on the Chapter 6 theory check aligned to objectives 6.1(1)–(5).
  2. Complete Labs 6-A and 6-B with:
    - a. correct layer assignment for  $\geq 95\%$  of steps/edges, and
    - b. zero unaddressed bypass violations.
  3. Do not introduce any non-canonical redefinitions of AB/RB or metrics.
- 

# Education-Binder SQC Gate Check (Chapter 6)

### Gate 1 — Structural Fidelity: PASS

Chapter matches Part II slot and F-Layer baseline; no TOC drift.

### Gate 2 — Terminology Accuracy: PASS

Four layers, duties, and invariants match v1.0a.

### Gate 3 — Canonical Metrics Rule: PASS

AB/RB/SI/HSS/SCP/CI referenced only as canonical objects; no formulas or thresholds introduced.

### Gate 4 — Normative Voice: PASS

MUST/SHALL/MAY used consistently; no marketing or speculation.

### Gate 5 — Change Spec Alignment: PASS

No layer-bypass or boundary changes; adoption bridges referenced only as canon-limited exception.

### Gate 6 — Cross-Reference Integrity: PASS

Readings point to correct canonical locations.

### Gate 7 — Testability: PASS

Objectives, labs, and pass criteria are concrete and auditable.

### Gate 8 — Completeness: PASS

Provides minimum architecture literacy for downstream Chapters 7–10.

---

## SETC Part II — Chapter 7

### Governance Kernel Literacy (F-Layer) (Normative)

#### 7.0 Purpose

1. This chapter establishes the minimum Governance Kernel literacy required for all SETC tracks. Governance is a first-class layer in Symbiosis and is non-optional for compliance.
2. Learners SHALL understand governance as **centralized ownership of boundaries, not centralized execution of tasks**. Governance defines policy, compiles constraints, gates autonomy, and preserves auditability.
3. This chapter teaches the **recognition-level** model of governance objects and flows. Canonical metric definitions (SI, HSS v2.0, SCP, CI, RB v2, AB schema) remain fixed in Framework Part III and SHALL NOT be redefined here.

---

#### 7.1 Learning Objectives (Required)

Upon completion, the learner SHALL be able to:

1. Explain why governance must be runtime-active (pre-flight, runtime RB/AB control, post-hoc audit), not merely advisory.
  2. Define the Governance Kernel (GK) at a boundary level and state its independence invariant.
  3. Name the core governance objects and describe what each controls, without asserting non-canonical formulas or thresholds.
  4. Describe how policy versions ( $P_v$ ) compile into Constraint Vectors ( $C_{\text{legal}}$ ,  $C_{\text{safety}}$ ,  $C_{\text{econ}}$ ) and why constraints are hard boundaries.
  5. Distinguish Risk Classes (R) from Autonomy Bands (AB) and explain their coupling via GK.
  6. Apply the decision-rights matrix to a simple case and identify correct escalation paths when admissibility fails.
-

## 7.2 Why Governance is a First-Class Layer

1. High-capability agentic systems fail predictably when governance is informal, producing:
    - a. autonomy creep into high-regret domains,
    - b. black-box decisions with no replayable lineage,
    - c. economic bleed from unchecked model/tool spend, and
    - d. unclear human accountability after incidents.
  2. Therefore, governance **MUST** be:
    - a. **ex ante** (pre-flight enforcement),
    - b. **runtime-active** (AB/RB gating), and
    - c. **post hoc auditable** (lineage).
  3. Any deployment where governance is bypassed, advisory-only, or non-versioned **SHALL** be classified as structurally non-symbiotic.
- 

## 7.3 Core Governance Objects (Recognition-Level)

Governance operates over a small set of stable objects. Learners **MUST** recognize these objects and their roles:

1. **Governance Kernel (GK).**  
Minimal isolated rule core embedded in the Engine that enforces policy invariants and gates AB/RB transitions. Agents cannot modify GK or cross RB without GK-signed authorization.
2. **Policy Version (P<sub>v</sub>).**  
A version-locked executable ruleset compiled into constraints and pinned per workflow for auditability. Policy deltas **MUST** be lineage-logged.
3. **Constraint Vectors (C).**  
The compiled hard boundaries controlling admissibility and execution:
  - a. **C\_legal** — jurisdiction, IP, privacy, retention;
  - b. **C\_safety** — harm thresholds, capability ceilings, domain exclusions;
  - c. **C\_econ** — spend caps, tier caps, interrupts.
4. **Risk Classes (R).**  
A typology of tasks relative to regret and non-delegability, used by GK to propose candidate AB ceilings and locks.
5. **Autonomy Bands (AB) and Regret Boundary (RB).**  
A state machine governed by GK that bounds delegation and imposes mandatory human checkpoints at RB crossings.

6. **Lineage (L).**

Immutable evidence graph required to reconstruct intent, constraints, TG, AB/RB state, and economic pass for all episodes.

7. **Economic Circuit / Budgets (B/EC).**

Pre-flight and runtime enforcement of admissible compute/spend; no execution proceeds without an Economic Pass.

---

## 7.4 Governance Kernel (GK) — Definition and Responsibilities

### 7.4.1 Definition (binding boundary)

1. The GK is the authoritative interpreter of policy and the enforcer of AB/RB and admissibility invariants. It runs inside the Engine and is isolated from agent write-paths.

### 7.4.2 Responsibilities (recognition-level, canon-aligned)

Learners **MUST** know that GK responsibilities include:

1. Compiling  $P_v$  into Constraint Vectors (C).
2. Defining non-delegable domains and AB lock rules.
3. Gating AB promotions/demotions.
4. Enforcing RB checkpoint requirements.
5. Maintaining Adoption Bridge admissibility rules when Bridges are enabled.
6. Triggering halts on policy drift mid-run.

### 7.4.3 Independence invariant (binding recognition)

1. GK **MUST** be:
  - a. **isolated from agent write-paths**,
  - b. **version-locked per workflow** ( $P_v$  pinned), and
  - c. **auditable by lineage events**.
2. Any architecture that allows agents to mutate policy, constraints, AB ceilings, or RB rules **SHALL** be treated as governance capture and structural failure.

---

## 7.5 Policy-as-Code and Constraint Compilation

1. Governance policy is executed as code through  $P_v$  and yields Constraint Vectors.
2. Constraints are **hard boundaries**:
  - a. any plan violating C is rejected pre-flight, and



- b. drift causing later violation forces a pause and re-validation.
  - 3. Learners SHALL treat constraints as superior to optimization goals. Any training artifact that frames constraints as optional is non-compliant.
- 

## 7.6 Decision Rights and Escalation (Minimum Model)

1. Governance centralizes **boundaries** while decision execution remains layered. The minimum decision-rights matrix is:
    - a. **Operators (H)**: own intent, approve RB crossings, override outputs within certificate ceilings.
    - b. **Engine (E)**: owns admissibility, routing, orchestration, economic gating.
    - c. **Agents (A)**: own bounded execution under contract.
    - d. **Governance Leads/Bodies (G)**: own  $P_v$  policy, AB thresholds, domain locks, escalation resolution.
  2. When admissibility fails or constraint conflicts occur, escalation MUST follow the layer ordering  $H \rightarrow G$ , with E mediating. Learners SHALL NOT route conflicts directly to agents.
- 

## 7.7 Required Readings

1. Framework v1.0a:
    - a. Part IV, Chapter 12 — Governance Layer + Governance Kernel v2 (definition, kernel independence). (Canonical reference; read in full.)
    - b. Part V, Chapter 16.3 — Telemetry and Lineage Minimums (governance-owned AB/RB and drift/decay tags).
    - c. Part V, P.6 Literacy and Certification requirements.
  2. Optional aligned contrast (non-authoritative for intuition only):
    - a. v0.9 governance object list and responsibilities, consistent with v1.0a deltas.
- 

## 7.8 Labs (Foundation)

### Lab 7-A — Governance object identification (required)

1. Given a Symbiosis episode narrative and partial lineage, the learner SHALL:
  - a. identify I,  $P_v$ , C, R, AB/RB state, B/EC outcome, and L anchors,

- b. assign ownership of each to the correct layer, and
  - c. state one safety consequence if each object is absent.
2. PASS requires zero ownership errors.

### **Lab 7-B — Constraint supremacy and escalation (required)**

1. For three scenarios where a draft TG violates C\_legal, C\_safety, or C\_econ, the learner SHALL:
    - a. show that pre-flight rejection is mandatory,
    - b. specify the correct escalation target (H or G), and
    - c. propose a compliant revision path without creating new goals.
  2. PASS requires correct rejection + escalation for all cases.
- 

## **7.9 Pass Criteria**

A learner PASSES Chapter 7 if they:

1. Achieve  $\geq 80\%$  on a theory check aligned to objectives 7.1(1)–(6).
  2. Complete Labs 7-A and 7-B with:
    - a. zero bypass permissions granted,
    - b. correct governance object ownership for 100% of items, and
    - c. correct escalation discipline for 100% of violation cases.
  3. Introduce no non-canonical thresholds or metric definitions in written responses.
- 

## **Education-Binder SQC Gate Check (Chapter 7)**

### **Gate 1 — Structural Fidelity: PASS**

Chapter matches fixed TOC slot (Foundation Governance Kernel literacy).

### **Gate 2 — Terminology Accuracy: PASS**

Governance objects, GK role, constraints, risk classes, and decision rights align to canon.

### **Gate 3 — Canonical Metrics Rule: PASS**

AB/RB/SI/HSS/SCP/CI referenced only as canonical objects; no formulas, weights, or thresholds introduced.

### **Gate 4 — Normative Voice: PASS**

All requirements use MUST/SHALL/MAY precisely; no promotional or speculative tone.

### **Gate 5 — Change Spec Alignment: PASS**

No governance duties reassigned; GK v2 referenced as canon source only.

### **Gate 6 — Cross-Reference Integrity: PASS**

Readings point to correct canonical locations (P.6 literacy, telemetry minima, GK v2).

## Gate 7 — Testability: PASS

Objectives, labs, and pass criteria are concrete and auditable.

## Gate 8 — Completeness: PASS

Sufficient GK literacy for canonical metrics and engine-stage chapters that follow.

---

### Part II — Shared Foundation Curriculum (F-Layer)

#### Chapter 8 — Canonical Metrics Literacy (SI, HSS v2.0, SCP, CI, RB, AB)

---

## 8.1 Purpose and scope

8.1.1 This chapter establishes baseline literacy in the Symbiosis Framework's canonical metrics and autonomy signals. It enables every certified role to accurately interpret telemetry, apply governance rules, and avoid metric misuse.

8.1.2 The canonical metrics are:

- **Symbiosis Index (SI)** — system collaboration health/control metric.
- **Human Symbiosis Score (HSS v2.0)** — human-side symbiotic skill metric family, with formal bands and safety/anti-gaming rules.
- **Symbiotic Capacity Profile (SCP)** — human-side capacity envelope (load-bearing and recovery characteristics).
- **Capability Index (CI / ACI)** — synthetic capability routing metric family.
- **Regret Boundary v2 (RB)** — reversibility threshold computed via Reversibility Cost (RC).
- **Autonomy Bands (AB0–AB3)** — canonical autonomy state machine governed by RB and metrics.

8.1.3 Canonical placement rule: SI, HSS, SCP, CI, RB, and AB schema are defined only in Framework Part III. This chapter SHALL NOT redefine equations, components, or weights; it provides interpretive and operational literacy only.

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## 8.2 Learning objectives

By the end of this chapter, the learner SHALL be able to:

1. Identify each canonical metric, its location in the Framework, and its allowed uses.
2. Distinguish **episode** vs **rolling** forms of SI and CI and explain why both exist.
3. Interpret SI subscores as a control surface without re-weighting or inventing new thresholds.
4. Explain HSS v2.0 as a safety-class human skill metric, including non-HR misuse prohibitions.

5. Explain SCP as a safety envelope (not a performance score) and state prohibited data sources.
  6. Apply RB v2 proximity classes and AB ceilings to reason about what autonomy is admissible for a given TG node.
  7. Describe how SI, HSS, SCP, CI, RB, and AB jointly gate promotions/demotions and routing decisions.
  8. Detect common metric-misuse patterns (Goodharting, Oversight Theater, autonomy creep) and specify the required governance response.
- 

### 8.3 Required readings (canonical)

Learners MUST complete the following before attempting labs:

1. Framework v1.0a, Part III:
    - Ch.7 Symbiosis Index (SI).
    - Ch.8 Human Symbiosis Score (HSS v2.0).
    - Ch.9 Symbiotic Capacity Profile (SCP).
    - Ch.10 Capability Index (CI) & MCP (focus on CI).
    - Ch.11 Regret Boundary v2 & Autonomy Bands (AB0–AB3).
  2. Framework appendices (for instruments, not new definitions):
    - App. C Regret Boundary Formalization.
    - App. H HSS v2.0 Extended Support.
    - App. I SCP Extended Support.
- 

### 8.4 Lecture units (foundation content)

#### Unit 8.4.A — Metric roles and the control stack

**8.4.A.1 SI is the relational health metric.** It is a bounded composite in  $[0,1]$  with five canonical subscores (Quality, Alignment, Economic Efficiency, Governability, Stability). Weights are sector/risk specific and GK-set; they are not universal.

**8.4.A.2 HSS is the skill metric for the human operator.** HSS v2.0 is canonical in Part III and organized into governance-banded competency levels. HSS SHALL be classified as Safety Metric Only and MAY NOT be used for HR or managerial purposes.

**8.4.A.3 SCP is the capacity envelope.** It characterizes safe load-bearing capacity and recovery under stress across four canonical dimensions, computed only from interaction/workflow telemetry and never from biometrics or medical/psychometric data.

**8.4.A.4 CI is the capability routing family for agents/tools.** The primary instance is ACI, computed per agent and per domain slice, with GK-set weights. Episode and rolling forms are used for routing admissibility and decay management.

8.4.A.5 **RB defines irreversibility risk.** RB v2 is computed via Reversibility Cost (RC) over economic, operational, safety, and legal reversal costs. RC bucket thresholds are deployment-specific and GK-versioned.

8.4.A.6 **AB is the autonomy state machine.** AB0–AB3 transitions are controlled by RB proximity and gated by SI/HSS/SCP/CI under GK policy. Agents cannot self-escalate.

---

#### **Unit 8.4.B — Episode vs rolling metrics and why both matter**

8.4.B.1 **Episode SI / rolling SI.** Episode SI is computed per TG episode; rolling SI is computed over a GK-defined window used for control decisions.

8.4.B.2 **ACI\_episode / ACI\_rolling.** ACI\_episode scores a bounded episode or TG node; ACI\_rolling applies a GK-defined smoothing window for routing/decay control.

8.4.B.3 Literacy requirement: learners SHALL interpret short-term drops (episode) differently than structural decay (rolling) and SHALL route concerns to Governance when rolling metrics trend down.

---

#### **Unit 8.4.C — Coupling logic (triangulation, not single-metric decisions)**

8.4.C.1 Autonomy promotion/demotion SHALL NOT trigger on SI alone. Decisions require joint consideration of SI, HSS, SCP, RB proximity, and AB ceilings.

##### **8.4.C.2 Interpretation patterns (canonical):**

- **High SI + low HSS** → system carrying operator; training required before autonomy increase.
  - **Low SI + high HSS** → operator capable; system/agent alignment or capability refactor required.
  - **Low SI + low HSS** → dual remediation: training + system redesign.  
(These patterns are interpretive heuristics and SHALL NOT introduce new thresholds.)
- 

#### **Unit 8.4.D — Safety classification, privacy, and anti-gaming**

8.4.D.1 HSS and SCP SHALL be treated as safety telemetry only. Any managerial, HR, or punitive use is a compliance violation.

8.4.D.2 Access and retention of HSS are restricted via RBAC, visibility rules, and time-bound retention; deviations invalidate compliance certification.

8.4.D.3 HSS SHALL include anti-gaming invariants (consistency/volatility/pattern checks). False inflation triggers calibration review, not operator punishment.

---

## 8.5 Labs (hands-on literacy)

Each lab is mandatory for all tracks.

### Lab 8.5.1 — Metric identification and allowed-use audit

**Input:** A short Symbiosis episode packet with fields: I, C, B, TG summary, SI subscores, HSS band, SCP headroom indicator, ACI\_rolling for bound agents, RB proximity class, and AB state.

**Tasks:**

1. List each metric present and the canonical chapter where its definition lives.
2. For each metric, write one allowed use and one prohibited use.
3. Flag any prohibited use present in the packet and write a corrective governance note.

**Pass criteria:** 100% correct canonical placement, and zero false negatives on prohibited-use detection.

---

### Lab 8.5.2 — Episode vs rolling interpretation drill

**Input:** Time series for SI\_episode, SI\_rolling, ACI\_episode, ACI\_rolling across 10 episodes.

**Tasks:**

1. Identify which changes are transient vs structural.
2. State whether a Governance escalation is required and why.
3. Propose the correct control response (e.g., AB demotion hold, agent reroute, human cooldown) by referencing canonical coupling logic.

**Pass criteria:** At least 90% correct classification of transient vs structural shifts, and correct escalation trigger reasoning.

---

### Lab 8.5.3 — RB proximity and AB admissibility reasoning

**Input:** Three TG nodes, each with RC bucket (low/mid/high), RB proximity class (below/proximate/above), and current AB ceiling.

**Tasks:**

1. For each node, state whether AB0–AB3 execution is admissible, citing RB proximity and AB state-machine constraints.
2. Identify mandatory human checkpoints.
3. Write a short lineage note showing what evidence must be logged.

**Pass criteria:** No AB admissibility errors; all mandatory checkpoints correctly identified.

---

### Lab 8.5.4 — Human saturation / Oversight Theater detection

**Input:** Episode packet showing stable SI but degrading SCP headroom and rising interruption frequency.

**Tasks:**

1. Diagnose the risk (human saturation / Oversight Theater precursor).
2. State the required Engine response and autonomy adjustment.
3. Write the training or cooldown action required for the operator.

**Pass criteria:** Correct diagnosis and correct control response consistent with SCP safety-envelope use.

---

## 8.6 Assessment and progression rules (chapter-level)

8.6.1 Learners **MUST** pass all labs before continuing to Chapter 9 (10-Stage Engine Literacy).

8.6.2 A failing learner **SHALL** receive remediation focused on:

- a) metric placement and allowed-use rules, or
- b) coupling logic and autonomy admissibility.

8.6.3 No learner **MAY** be advanced to any track-specific curriculum (Part III) unless this chapter is passed, because all subsequent tracks depend on correct metric handling.

---

## Education-Binder SQC Gate Check — Chapter 8

Gate 1 — **Structural Fidelity to SETC TOC:** PASS. Chapter matches fixed Part II, Chapter 8 slot; no reordering or scope drift.

Gate 2 — **Terminology Accuracy to v1.0a:** PASS. All terms and metric names align to Part III canon.

Gate 3 — **Canonical Metrics Non-Redefinition:** PASS. No new equations, weights, or thresholds introduced; only literacy and use constraints.

Gate 4 — **Normative Technical Voice:** PASS. **MUST/SHALL/MAY** used for rules; no marketing language.

Gate 5 — **Testability / Assessability:** PASS. Labs have concrete inputs, tasks, and pass criteria.

Gate 6 — **Cross-Reference Integrity:** PASS. Required readings point to correct canonical chapters/appendices only.

Gate 7 — **Safety / Abuse Hardening:** PASS. HSS/SCP safety-only use, privacy, and

anti-gaming rules are correctly taught without expansion.

Gate 8 — **Completeness for Foundation Literacy**: PASS. SI, HSS, SCP, CI, RB, AB all covered with coupling and operational interpretation.

---

## SETC Part II — Chapter 9

### 10-Stage Engine Literacy (F-Layer) (Normative)

#### 9.0 Purpose

1. This chapter establishes mandatory literacy in the canonical Symbiosis Engine Algorithm v2 (the 10-stage pipeline).
  2. All learners across all tracks SHALL be able to:
    - a. name the 10 stages in order,
    - b. state each stage's purpose, inputs, and outputs at a recognition level,
    - c. identify which stages are hard-stop gates versus planning/dispatch stages, and
    - d. interpret how Dry-Run, Economic Circuit, RB/AB gating, and lineage commits are positioned and enforced.
  3. Canonical numerical thresholds and full metric equations (SI, HSS v2.0, SCP, CI, RB/RC) remain confined to Framework Part III and SHALL NOT be redefined here.
- 

#### 9.1 Learning Objectives (Required)

Upon completion, the learner SHALL be able to:

1. Recite the canonical 10-stage pipeline in order and describe what changes state at each stage.
  2. Distinguish **pre-flight gates** (Stages 1–6, 9 where required) from **execution/closure** (Stage 10).
  3. Explain why the ordering is binding and what constitutes a non-compliant deviation.
  4. State when Dry-Run is mandatory and what artifacts it must produce.
  5. Trace how constraints, budgets, RB proximity, AB ceilings, context tiers, contracts, and lineage blocks flow across stages.
  6. Identify the mandatory Engine response to five canonical failure modes (constraint violation, budget overrun, unauthorized RB crossing, SCP overload, drift/policy change mid-run).
-



## 9.2 Canonical 10-Stage Pipeline (Recognition-Level)

**Binding rule:** A system MAY claim Symbiosis compliance only if it implements stages 1–10 in order (or a provably equivalent sequence) and logs lineage at the specified gates.

Each stage below is stated at a recognition level; learners must not add alternative stages or reorder.

---

### Stage 1 — Intent Ingestion and Normalization ( $AS \rightarrow I$ )

1. E SHALL ingest intent from H via an approved interface.
2. E SHALL normalize it into a stable Structured Intent Object, including explicit constraints, budget envelope, non-delegables, and provenance metadata.
3. E SHALL log an intent hash to lineage.

**Output:** normalized intent package.

---

### Stage 2 — Constraint Consolidation ( $I + C_o + P_v \rightarrow C$ )

1. E SHALL compile all applicable constraints into a consolidated vector  $\langle C\_legal, C\_safety, C\_econ \rangle$  bound to active policy version  $P_v$ .
2. E SHALL log C and  $P_v$  hashes to lineage.
3. **Invariant:** any plan or action violating C MUST be rejected pre-flight.

**Output:** consolidated constraint vector.

---

### Stage 3 — Pre-Flight Admissibility Guard (Hard-Stop Scan)

1. E SHALL perform a guard scan over intent and constraints to detect non-delegables, prohibited tools, missing evidence, jurisdiction/privacy violations, and coarse economic infeasibility.
2. If a guard condition fails, E MUST return a structured rejection specifying violated constraints and remediation path.

**Output:** admissible intent package OR hard stop.

---

### Stage 4 — Draft Plan Synthesis (Planner / Decomposer)

1. E SHALL decompose admissible intent into a draft Task Graph ( $TG_o$ ) with typed nodes and dependencies.
2. Candidate AB ceilings may be proposed per node but are not final until Stage 6.

**Output:** draft  $TG_o$ .

---

### Stage 5 — Economic Pass v2 (Economic Circuit Gate)

1. E SHALL estimate projected cost/compute for  $TG_0$  and compare to the Budget Envelope B.
2. If projected spend exceeds B, E MUST optimize, re-estimate, or return to H for override; no execution proceeds without an Economic Pass.
3. **Local compute gating (v1.0):** where hybrid/local compute is used, E MUST enforce Compute Saturation (CS) and Queue Latency (QL) gates and respond by deferring, queue-shaping, reducing concurrency, or demoting AB rather than silently spilling to cloud. Thresholds are Governance-set.

**Output:** economically admissible  $TG_1$  or hard stop/override request.

---

### Stage 6 — Regret Boundary Evaluation & AB Selection (RB/AB Assignment)

1. E SHALL evaluate RB/RC proximity for  $TG_1$  nodes and select operational AB ceilings per node under GK rules.
2. Mandatory human checkpoints SHALL be inserted at RB crossings.
3. Agents cannot self-escalate AB or cross RB without kernel-signed authorization.

**Output:** RB-tagged, AB-assigned  $TG_2$ .

---

### Stage 7 — Context Assembly & Memory Governance

1. E SHALL select appropriate Multi-Tier Memory tiers and assemble node-specific context bundles  $K_i$ .
2. Context selection SHALL respect  $C\_legal/C\_safety$  and be logged into lineage for audit.

**Output:** context-bound  $TG_3$ .

---

### Stage 8 — Contract Binding & MCP Routing

1. For each  $TG_3$  node, E SHALL select admissible agents/tools by capability match (CI), AB eligibility, and cost efficiency.
2. E SHALL bind MCP contracts that include allowed tools, AB ceiling, cost caps, escalation rules, and rollback semantics.
3. Any selection violating C or B MUST be rejected.

**Output:** final  $TG_4$  with bound contracts.

---

## Stage 9 — Mandatory Dry-Run (Pre-Execution Simulation)

1. **When Dry-Run is mandatory:** E MUST perform Dry-Run when any of the following holds:
  - a. intended  $AB \geq 2$ ,
  - b. RB-proximate under governance rules,
  - c. compliance-critical or economically high-impact risk class, or
  - d. elevated drift/decay risk signals.
2. **Dry-Run behavior requirements:** E MUST simulate  $TG_4$  without irreversible actions, produce preview artifacts (intended actions, evidence trace, cost projection deltas, constraint satisfaction report), require human confirmation before unlocking execution budgets, and log Dry-Run lineage as a distinct pre-flight block.
3. Dry-Run latency is a safety signal; rising latency MUST trigger AB demotion or concurrency reduction recommendations.

**Output:** Dry-Run-cleared  $TG_5$  or hard stop.

---

## Stage 10 — Orchestrated Execution, Reconciliation & Learning Loop

1. E SHALL dispatch  $TG_5$  nodes to bound agents with their context bundles, enforce checkpoints, and handle exceptions under recovery doctrine.
2. E SHALL commit full execution trace to lineage  $L^+$  and compute canonical metric deltas (SI, HSS v2.0, SCP, CI, RB/AB transitions) using Part III definitions.
3. If drift is detected post-execution, E SHALL re-enter admissibility or planning stages with revised I/C as required by canon.

**Output:** completed episode, lineage closure, and co-adaptive updates.

---

## 9.3 Canonical Failure Modes and Mandatory Responses (Recognition)

Learners MUST internalize the Engine's mandatory responses to the following failure classes:

1. **Constraint violation:** pre-flight rejection with violated constraint and remediation path.
2. **Budget overrun / runaway agent risk:** Economic Circuit halt + optimization or human override request.

3. **Unauthorized RB crossing attempt:** hard stop, audit event, AB demotion, kill-switch path if needed.
  4. **SCP overload / Oversight Theater precursor:** throttle concurrency, increase compression, recommend AB demotion.
  5. **Context drift / policy version change mid-run:** pause, refresh context, re-validate C and RB, then resume or abort.
- 

## 9.4 Required Readings

1. Framework v1.0a (canonical):
    - a. Part IV, Chapter 13 — Engine Algorithm v2 (Stages 1–10, state machine, inputs/outputs).
    - b. Part II, Chapter 5 — Dry-Run upgrade and Economic Circuit enforcement behavior.
  2. Optional aligned contrast (non-authoritative):
    - a. v0.9 stage narrative for intuition only; stage names and order must conform to v1.0a.
- 

## 9.5 Labs (Foundation)

### Lab 9-A — Stage-order reconstruction (required)

1. Given a shuffled list of stage descriptions, the learner SHALL reorder them into the canonical 10-stage sequence and label each as “Gate,” “Plan,” “Bind,” “Simulate,” or “Execute/Close.”
2. PASS requires exact ordering and correct category labels for all stages.

### Lab 9-B — Pipeline tracing on a mini-episode (required)

1. Given a short episode packet ( $I_0$ , partial  $C_0$ , B, risk note, candidate agents, RB proximity flags), the learner SHALL:
  - a. trace which artifacts are produced or updated at each stage,
  - b. specify where lineage commits occur, and
  - c. identify whether Stage 9 Dry-Run is mandatory and why.
2. PASS requires zero Dry-Run mandate errors and correct artifact placement at  $\geq 95\%$  of stages.

### Lab 9-C — Failure-mode injection (required)

1. For five injected failure cases (one per class in §9.3), the learner SHALL state the mandatory Engine response and the escalation target.
  2. PASS requires 100% correct mandatory responses with no invented alternatives.
-

## 9.6 Pass Criteria

A learner PASSES Chapter 9 if they:

1. Achieve  $\geq 80\%$  on the theory check aligned to objectives 9.1(1)–(6).
  2. Pass Labs 9-A, 9-B, and 9-C with:
    - a. exact stage ordering,
    - b. correct Dry-Run mandate detection, and
    - c. zero deviation from canonical failure responses.
  3. Do not introduce any non-canonical stage, threshold, or metric definition in written outputs.
- 

## Education-Binder SQC Gate Check (Chapter 9)

### Gate 1 — Structural Fidelity: PASS

Chapter matches fixed Part II, Chapter 9 slot and F-Layer scope.

### Gate 2 — Terminology Accuracy: PASS

Stage names, order, and state machine align to Engine Algorithm v2 canon.

### Gate 3 — Canonical Metrics Rule: PASS

Metrics referenced only as canonical objects; no equations/weights/thresholds added.

### Gate 4 — Normative Voice: PASS

MUST/SHALL/MAY used precisely; no marketing or speculation.

### Gate 5 — Change Spec Alignment: PASS

Ordering binding rule and Dry-Run/Economic Circuit upgrades reflect v1.0a deltas without extension.

### Gate 6 — Cross-Reference Integrity: PASS

Required readings point only to canonical Engine and upgrade locations.

### Gate 7 — Testability: PASS

Labs and pass criteria are concrete, auditable, and stage-specific.

### Gate 8 — Completeness: PASS

Provides full recognition-level literacy of the 10-stage Engine required for Chapters 10–14.

---

## SETC Part II — Chapter 10

### Lineage, Auditability, and Forensics Basics (F-Layer) (Normative)

#### 10.0 Purpose

1. This chapter establishes the minimum literacy required to read, validate, and use Symbiosis lineage for audit and incident forensics.
  2. Symbiosis treats lineage as a **hard compliance artifact**, not optional logging. Every workflow MUST emit lineage sufficient to reconstruct intent, constraints, task graph, autonomy state, and economic admissibility.
  3. This chapter provides recognition-level structure, required minima, and the correct operational uses of lineage. It SHALL NOT redefine canonical metrics or introduce non-canonical lineage fields.
- 

## 10.1 Learning Objectives (Required)

Upon completion, the learner SHALL be able to:

1. Define “Context Lineage (L)” as the immutable record that ties every agent action to intent, constraints, TG, AB/RB state, and Economic Pass.
  2. List the **lineage reconstruction sufficiency set** (I, C, TG, AB/RB, Economic Pass) and explain why absence of any element invalidates auditability.
  3. Identify the canonical **telemetry minima** required per episode and per TG node.
  4. Explain how lineage enables deterministic replay and SI audit, without recomputing or reweighting SI.
  5. Describe the required evidence bundle for S2+ incidents and the role of forensic lineage export.
  6. Detect common audit failures (missing anchors, unpinned policy, unlogged reroutes, absent context provenance) and state mandatory remediation paths.
- 

## 10.2 Lineage in Symbiosis (Canonical Concept)

### 10.2.1 Definition (binding)

1. **Context Lineage (L)** is the immutable ancestry graph of a Symbiosis episode, recording:
  - a. intent versions,
  - b. consolidated constraints and policy version,
  - c. task graph and node identities,
  - d. AB/RB state at each execution point,
  - e. economic admissibility and cost attribution, and

- f. all dispatches, checkpoints, overrides, halts, and completions.
- 2. Lineage is required to make hybrid intelligence **governable, replayable, and regulator-defensible**. Without lineage, the system is Shadow AI by definition.

### 10.2.2 Directional ownership (recognition-level)

Learners SHALL correctly attribute lineage ownership as follows:

- 1. **Human Layer:** intent\_id and human approvals/overrides at RB checkpoints.
- 2. **Governance Layer / GK:** constraint\_vector\_id, policy version pin, AB/RB state, drift\_vs\_decay tags.
- 3. **Engine:** TG anchors, economic\_pass verdicts, SI computation storage.
- 4. **Agentic Layer:** tool calls, outputs, intermediate artifacts, and telemetry returned upstream for commit.

---

## 10.3 Telemetry and Lineage Minimums (Binding)

- 1. **Reconstruction sufficiency:** Every workflow SHALL emit lineage sufficient to reconstruct at minimum:  
**I + C + TG + AB/RB state + Economic Pass.**
- 2. **Telemetry minima (per episode, non-exhaustive binding set):**
  - a. intent\_id (immutable) — Human owner.
  - b. constraint\_vector\_id + pinned policy version — Governance owner.
  - c. tg\_id / node\_id lineage anchors — Engine owner.
  - d. ab\_state (AB0–AB3 at node execution) — GK owner.
  - e. rb\_state (RB proximity/class at node execution) — GK owner.
  - f. economic\_pass (approve/deny/defer + cost attribution) — Economic Circuit owner.
  - g. si\_episode / si\_rolling values — Engine telemetry owner.
  - h. hss\_operator snapshot — Human telemetry owner.
  - i. scp\_operator snapshot — Human telemetry owner.
  - j. drift\_or\_decay\_tag — GK owner.
- 3. If telemetry minima are absent for a workflow, that workflow SHALL be treated as **non-auditable** and ineligible for AB2+ operation.
- 4. **Context provenance requirement:** any TG node missing context\_bundle\_id or context lineage invalidates SI audit replay and SHALL be treated as an evidence failure.

---

## 10.4 Auditability and Deterministic Replay

1. An audit SHALL treat lineage as the authoritative source of “what happened.” Auditors MUST be able to reconstruct episodes deterministically from lineage.
2. Canonical SI audits require:
  - a. stratified episode sampling across AB bands,
  - b. reconstruction from lineage (I + C + TG + AB/RB + Economic Pass + telemetry),
  - c. recomputation of SI\_episode per Part III math, and
  - d. divergence testing against GK tolerance  $\epsilon$ .
3. If divergence exceeds  $\epsilon$ , the result is a **SI Integrity Failure**, and mandatory actions include AB demotion and telemetry/GK calibration review.
4. Learners SHALL NOT invent alternate audit steps or replace lineage reconstruction with narrative recollection; non-lineage audits are invalid.

---

## 10.5 Forensics Basics (S2+ Incidents)

1. For incidents classified S2 or higher, a complete incident evidence bundle is mandatory.
2. The evidence bundle MUST include at minimum:
  - a. incident header (severity, layer IDs, timestamps, stability tags),
  - b. lineage slice from baseline intent through outputs and costs,
  - c. mechanistic causality narrative,
  - d. drift vs decay determination,
  - e. AB/RB actions taken,
  - f. economic actions (halts/caps/deltas),
  - g. rollback proof if external side effects occurred, and
  - h. remediation plan plus re-entry criteria.
3. Absence of a complete evidence bundle SHALL be treated as a Governance evidence failure.
4. Forensics is therefore **debugging system state**, not speculating about model intent; lineage is the sole admissible substrate. (Aligned intuition retained from earlier drafts.)

---

## 10.6 Common Lineage Failures and Required Responses



Learners MUST recognize these failure patterns:

1. **Missing anchors (intent\_id, tg\_id, node\_id):** episode ineligible for replay; hard evidence failure requiring instrumentation repair.
  2. **Unpinned policy / mutable constraints:** governance capture risk; invalidate episode for audit; require re-run under pinned Pv.
  3. **Unlogged agent swaps or reroutes:** violates “no silent rerouting” rule; must be logged or rejected.
  4. **Absent context provenance:** invalidates SI audit and drift diagnosis.
  5. **Missing drift\_vs\_decay\_tag at failure time:** blocks correct recovery path; mandatory to add GK instrumentation.
- 

## 10.7 Required Readings

1. Framework v1.0a (canonical):
    - a. Chapter 16.3 — Telemetry and Lineage Minimums.
    - b. Appendix C.8 — SI Audit Procedure and Replay Sufficiency.
    - c. Appendix O.4 — Required Incident Package for S2+.
  2. Optional aligned contrast (non-authoritative, intuition only):
    - a. v0.9 lineage narrative and minimum event list (consistent with canon framing).
- 

## 10.8 Labs (Foundation)

### Lab 10-A — Lineage sufficiency validation (required)

1. Given three anonymized lineage slices, the learner SHALL:
  - a. verify presence of the reconstruction sufficiency set (I, C, TG, AB/RB, Economic Pass),
  - b. verify telemetry minima presence, and
  - c. flag any insufficiency as a compliance failure.
2. PASS requires zero false negatives on missing minima.

### Lab 10-B — Deterministic replay walk-through (required)

1. Given one complete lineage slice, the learner SHALL reconstruct the episode narrative in canonical order and identify where each stage-gate lineage commit occurred.
2. PASS requires correct reconstruction of all commits and no invented events.

## Lab 10-C — Incident bundle assembly drill (required)

1. Using a provided S2 incident scenario and lineage slice, the learner SHALL produce a complete incident evidence bundle per §10.5.
  2. PASS requires all mandatory sections present and correctly grounded to lineage.
- 

## 10.9 Pass Criteria

A learner PASSES Chapter 10 if they:

1. Achieve  $\geq 80\%$  on the Chapter 10 theory check aligned to objectives 10.1(1)–(6).
  2. Pass Labs 10-A, 10-B, and 10-C with:
    - a. correct identification of all missing minima,
    - b. accurate deterministic replay, and
    - c. complete incident bundle assembly.
  3. Do not introduce any non-canonical metrics, thresholds, or lineage fields in written outputs.
- 

# Education-Binder SQC Gate Check (Chapter 10)

### Gate 1 — Structural Fidelity: PASS

Chapter matches fixed Part II, Chapter 10 purpose (Lineage/Audit/Forensics basics).

### Gate 2 — Terminology Accuracy: PASS

Lineage, telemetry minima, replay, and incident package align to v1.0a canon.

### Gate 3 — Canonical Metrics Rule: PASS

No SI/HSS/SCP/CI/RB/AB math or weights redefined; only audit uses referenced.

### Gate 4 — Normative Voice: PASS

All requirements expressed with MUST/SHALL/MAY; no speculative or marketing tone.

### Gate 5 — Lineage Recoverability: PASS

Reconstruction sufficiency set and telemetry minima are explicit and canon-consistent.

### Gate 6 — Drift vs Decay Typing: PASS

drift\_or\_decay\_tag requirement preserved without redefining taxonomy.

### Gate 7 — Abuse / Incentive Hardening: PASS

Audit divergence rules and no-silent-reroute constraints included as mandatory defenses.

### Gate 8 — Mechanistic Testability / Completeness: PASS

Labs and pass criteria are concrete, auditable, and sufficient for transition to Part III.

---

Status: Normative education specification, SETC-v1.0

Canonical dependencies: Symbiosis Framework v1.0a (Part I–V) is supreme.

---

## 11.1 Purpose of the O-Track

The Operator Track (O-Track) defines the minimum, testable competencies required for any human who originates Structured Intent Objects (I), supervises Task Graph (TG) execution, and holds regret ownership for outcomes in a Symbiosis-compliant system. The O-Track exists to prevent “Shadow Symbiosis” and to ensure that human primacy, constraint supremacy, bounded autonomy, and lineage recoverability are upheld at runtime by operational humans.

Operators certified under this track MAY act as Symbiote Operators (SO) within Adoption Tiers 0–3, subject to governance-assigned AB ceilings and risk-class policy.

---

## 11.2 Audience and Entry Criteria

### 11.2.1 Intended audience

The O-Track is mandatory for:

1. End-users relying on the Symbiosis Engine (E) to execute or recommend actions.
2. Domain operators supervising AI-assisted workflows (public sector, enterprise, clinical, industrial, education, etc.).
3. Any role granted AB0–AB2 operational authority.
4. Any human who performs RB checkpoint approvals, manual demotions, or kill-switch actions.

### 11.2.2 Prerequisites

An O-Track candidate MUST have completed the Shared Foundation Curriculum (Chapters 5–10) and passed its assessments. Specifically, they MUST demonstrate baseline literacy in:

- Four-Layer Architecture and boundary duties.
- Canonical metrics interpretation (reference-only use).
- 10-Stage Engine overview and lineage basics (reference-only).

No additional formal credential is required; however, governance MAY impose domain-specific entry constraints for high-risk deployments.

---

## 11.3 Operator Role Contract (Binding for O-Track)

Certified Operators SHALL execute the Symbiote Operator duties as defined in framework canon:

1. **Intent origination:** submit Structured Intent Objects (I) via an Alignment Surface (AS).
2. **Constraint declaration:** specify or confirm C\_legal, C\_safety, and C\_econ per intent.
3. **Checkpoint supervision:** review transparency traces at all RB checkpoints; explicitly accept/reject/modify.
4. **Override discipline:** provide rationale for overrides; preserve interpretability within lineage.
5. **Artifact hygiene:** maintain durable outputs in lineage; avoid ephemeral-only decisions.

Operators SHALL treat agent outputs as proposals, not authority, and SHALL maintain calibrated trust as a safety discipline.

Operators MAY refuse autonomy escalation and SHALL be protected from punitive consequences for Manual Mode demotions.

---

## 11.4 Learning Objectives (Competency Outcomes)

Upon completion, the Operator SHALL be able to:

### LO-O1: Produce compliant Intent Objects

- Convert low-fidelity natural language to a well-formed I including required fields (goal, scope, constraints, budget, DoD, regret sensitivity marker).
- Detect when intent normalization is failing and provide necessary clarifications without allowing goal invention.

### LO-O2: Apply constraint supremacy at runtime

- Identify missing, ambiguous, or conflicting constraints across C\_legal, C\_safety, C\_econ.
- Reject or rescope intents that cannot be bounded by explicit constraints.

### LO-O3: Supervise AB/RB checkpoints correctly

- Interpret autonomy band prompts and RB proximity alerts, and execute the correct approval, modification, or demotion action.

- Provide rationale in lineage for each checkpoint decision.

#### **LO-O4: Maintain safe oversight under SCP limits**

- Recognize SCP saturation signals and accept Engine throttling/demotion actions to preserve safe supervision.
- Detect and avoid oversight theater (rubber-stamping) and trust pathologies.

#### **LO-O5: Read and use lineage for accountability**

- Navigate intent→TG→agent output→checkpoint decisions as a replayable evidence trace.
- Identify a lineage failure and escalate per governance process.

#### **LO-O6: Uphold non-punitive human-metrics doctrine**

- Treat HSS and SCP as safety telemetry only; refuse HR/disciplinary uses and report misuse as non-compliance.

---

## **11.5 Required Readings (Canonical Cross-References)**

Operators **MUST** complete and be assessed on the following framework sections:

1. **Framework Chapter 1:** Purpose, bounded claims, reader contract, SQC.
2. **Framework Chapter 2:** Axioms and primitives (Human Primacy, Constraint Supremacy, Lineage Recoverability, Layer Integrity).
3. **Framework Chapter 4:** Human Layer duties, intent normalization rules, SCP safety throttling, Non-Punitive Covenant, Manual Mode rights.
4. **Framework Part III (reference for interpretation):** Canonical metrics and AB/RB definitions (read-only, no redefinition).

Optional background (non-authoritative): earlier drafts' case studies **MAY** be used for practice scenarios, provided terminology matches v1.0a.

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## **11.6 Curriculum Units (Lecture + Practice)**

### **Unit O-1: Operator sovereignty and responsibility**

- Human meaning authority and regret ownership.
- Kill-switch/override rights and why they are mandatory.

### **Unit O-2: Intent discipline**

- AS fidelity differences; why low-fidelity inputs require normalization.
- Required I fields; common operator failure H-01.

### **Unit O-3: Constraint vector literacy**

- Practical identification of C\_legal/C\_safety/C\_econ elements.
- Constraint precedence over optimization goals.

### **Unit O-4: Autonomy supervision**

- How AB ceilings are assigned by governance; operator duties at checkpoints.
- Manual demotion rights and non-punitive guarantee.

### **Unit O-5: Safe attention economics**

- SCP as concurrency headroom; interrupt throttling.
- Oversight theater and trust calibration signatures.

### **Unit O-6: Lineage reading for operators**

- “Life of a decision” trace as the operator’s accountability backbone.
- Detecting Shadow AI / Shadow Symbiosis via missing fields.

## **11.7 Labs (Mandatory)**

Each lab MUST be executed in a controlled training environment with lineage capture enabled.

### **Lab O-1: Intent normalization and repair**

**Scenario:** Candidate receives an underspecified natural language request.

**Task:** Produce a compliant Structured Intent Object (I) with explicit constraints and budget.

**Pass condition:** All mandatory I fields present; no invented goal expansion; candidate flags any missing constraints.

### **Lab O-2: Constraint conflict triage**

**Scenario:** Intent includes conflicting legal/safety/economic constraints.

**Task:** Identify conflict, rescope or reject intent, and log rationale.

**Pass condition:** Candidate applies constraint supremacy; chooses safe rejection/rescope path.

### **Lab O-3: RB checkpoint adjudication**

**Scenario:** Engine requests approval at an RB crossing with evidence trace.

**Task:** Accept, modify, or demote AB; provide rationale.

**Pass condition:** Decision matches evidence, regret sensitivity, and active constraints; rationale is lineage-ready.

### **Lab O-4: SCP saturation response**

**Scenario:** High parallel TG lanes produce SCP saturation alert.

**Task:** Candidate accepts throttle/demotion, consolidates tasks, or pauses execution.

**Pass condition:** Candidate prevents oversight theater and preserves safe supervision.

### **Lab O-5: Lineage reading and fault detection**

**Scenario:** Candidate is given a completed episode trace.

**Task:** Reconstruct intent-to-outcome pathway and identify any telemetry/lineage minima breach.

**Pass condition:** Candidate correctly detects missing required fields and escalates as a lineage failure.

---

## **11.8 Assessment Model and Passing Criteria**

### **11.8.1 Knowledge exam (theory)**

- Format: closed-book multiple choice + short structured responses.
- Coverage: LO-O1 through LO-O6.
- Pass threshold:  $\geq 80\%$ .

### **11.8.2 Practical evaluation**

- Candidate **MUST** pass all Labs O-1 through O-5.
- Any RB checkpoint error, constraint-supremacy miss, or misuse of human metrics constitutes automatic failure.

### **11.8.3 Certification outcome**

A candidate who passes theory and practical evaluations **SHALL** be awarded **O-Cert** and **MAY** operate within governance-assigned AB ceilings. Assignment of AB ceilings remains a governance act and is not granted by certification alone.

---

## **11.9 Recertification and Drift Control (Operator)**

Operators SHALL undergo recertification on a cadence defined in Part V of SETC (Chapter 27). Governance MAY require early recertification if lineage shows incident-linked operator failure modes (H-01 through H-05).

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## Education-Binder SQC Gate Check — Chapter 11

Gate 1 — Structural Fidelity to SETC TOC: **PASS**. Chapter produced as Part III, Chapter 11 only; no reordering or extra chapters.

Gate 2 — Canon Supremacy (v1.0a aligned): **PASS**. All role duties, invariants, and terminology cite v1.0a; older drafts not used normatively.

Gate 3 — Canonical Metrics Non-Redefinition: **PASS**. SI/HSS/SCP/CI/RB/AB referenced for literacy and assessment only; no formulas, weights, or thresholds introduced.

Gate 4 — Normative Voice Consistency: **PASS**. Requirements use MUST/SHALL/MAY correctly; no marketing tone.

Gate 5 — Mechanistic Testability: **PASS**. Objectives, labs, and pass criteria are operationally testable and map to enforceable behaviors of H/E/G.

Gate 6 — Lineage / Audit Cross-Reference Integrity: **PASS**. Training emphasizes reconstructability and telemetry minima without redefining lineage schema.

Gate 7 — Abuse / Incentive Hardening: **PASS**. Non-punitive covenant is enforced as a certification rule; anti-gaming posture is explicit.

Gate 8 — Completeness vs. Scope: **PASS**. Includes prerequisites, objectives, readings, labs, assessments, and recert guidance for O-Track.

---

Part III — Track Curricula (A-Layer)

Chapter 12 — Practitioner Track Curriculum (P-Track)

### 12.1 Purpose and role boundary

The Practitioner Track (P-Track) certifies individuals who **design, build, and evolve** **Symbiosis-compliant workflows**. Practitioners operate above day-to-day use: they translate organizational or domain goals into **Structured Intent Objects, Task Graphs, Constraint Vectors**, and **MCP-bound agent suites**, then validate performance and safety under Governance Kernel rules.

P-Track is the required qualification pathway for any person who:



- authors or modifies Task Graphs used in production,
- binds or edits MCP contracts / capability routing,
- configures Economic Circuit parameters or budget envelopes,
- designs Adoption Bridges or AB2+ safe harbors, or
- performs stability / drift mitigation on live Symbiosis systems.

Role mapping to framework canon: P-Track corresponds to the **Hybrid Intelligence Architect (HIA)** role in the v1.0a framework's operationalization layer. HIAs are required to produce reference TG/MCP suites and pass economic admissibility validation prior to shipping AB2+ workflows.

## 12.2 Entry prerequisites

A candidate SHALL be admitted to P-Track only if all prerequisites are met:

1. **Foundation completion.**  
Candidate MUST hold an active Foundation credential (Part II, Chapters 5–10) demonstrating baseline literacy in four-layer architecture, Governance Kernel, and canonical metrics.
2. **Operational baseline.**  
Candidate MUST demonstrate Operator-level competence, including correct AB/RB checkpoint behavior and lineage interpretation.
3. **Domain authorization.**  
Candidate MUST be authorized by their organization's governance body to design workflows in a specific domain risk class.
4. **Initial HSS/SCP adequacy.**  
Candidate MUST demonstrate sufficient HSS/SCP headroom for high-band design and review work. The track SHALL NOT redefine HSS/SCP thresholds; any numeric gates are Governance-set per deployment.

## 12.3 Learning objectives (normative)

On completion of P-Track, the practitioner SHALL be able to:

### LO-P1: Intent-to-TG engineering.

Convert a baseline Structured Intent Object into a typed Task Graph with dependencies, checkpoints, and explicit autonomy ceilings. TG synthesis MUST respect the canonical Engine pipeline ordering and RB/AB gating.

### LO-P2: Constraint Vector design.

Derive and formalize Constraint Vectors  $\langle C\_legal, C\_safety, C\_econ \rangle$  from policy and domain requirements, and show correct injection points into Engine, TG, and contracts. Constraint supremacy SHALL be treated as a binary admissibility filter.

**LO-P3: Economic admissibility & optimization.**

Apply Economic Circuit v2 pre-flight costing to candidate TGs; revise plans to eliminate economic bleed without degrading objective admissibility. No execution may proceed outside an economically admissible TG.

**LO-P4: MCP contract engineering & agent routing.**

Bind nodes to admissible agents using CI-based selection, AB ceilings, required constraint sets, memory tiers, and cost caps. Contracts SHALL be treated as governance boundary objects.

**LO-P5: Co-evolution and stability operations.**

Interpret SI/HSS/SCP telemetry and stability vital signs to (a) detect drift vs decay, (b) trigger correct recovery loops, and (c) propose safe-core vs fast-edge updates under governance approval. Canonical metrics MUST be referenced only, not redefined.

**LO-P6: Governance collaboration.**

Co-author domain playbooks, escalation maps, and Adoption Bridge policies with Governance Leads; demonstrate correct separation of concerns and “no layer bypass.”

## 12.4 Curriculum structure

P-Track SHALL consist of five modules. Each module includes lecture units, required readings, labs, and a graded assessment.

**Module P1 — Practitioner architecture mastery**

**Goal:** internalize the Engine’s deterministic state machine and its coupling to constraints, budgets, RB/AB, MCP, and lineage.

- Units:
  - Intent normalization and guard scanning
  - TG lifecycle and binding order
  - MTM tier selection and context governance
  - Telemetry minima and lineage replay requirements
- Required readings:
  - Framework v1.0a Chapter 13 (Engine Algorithm v2)
  - Framework v1.0a Appendix D (TG Formal Spec)
  - Framework v1.0a Appendix E (MCP / Contract Schema)
- Lab P1-L1: **Pipeline reconstruction.**

Given a lineage trace, candidate SHALL reconstruct  $S_0 \rightarrow S_6$  transitions and identify which stage produced each artifact.
- Pass criteria:
  - 90% accuracy in stage mapping;
  - zero mis-assignment of RB checkpoints or AB ceilings.

## Module P2 — Task Graph design & autonomy calibration

**Goal:** design TGs that are dependency-correct, AB/RB-safe, and testable.

- Units:
  - DAG vs cyclic-with-rollback TGs
  - RB proximity tagging and checkpoint insertion
  - AB ceiling selection per node
  - Dry-run requirements and failure fallbacks
- Required readings:
  - Framework v1.0a Appendix D (TG Spec), esp. TG purpose and the “no execution outside TG” rule.
  - Framework v1.0a Chapter 11 (RB v2 & AB0–AB3)
- Lab P2-L1: **TG synthesis from messy intent.**  
Candidate receives underspecified  $I_0$ ; SHALL produce  $TG_0$ , then refine to finalized TG with explicit checkpoints and ceilings.
- Lab P2-L2: **AB demotion redesign.**  
Candidate receives a TG rejected for unsafe AB; SHALL redesign to governance-admissible ceilings without altering objectives.
- Pass criteria:
  - TG passes conformance checks: typed nodes, explicit dependencies, RB tags, AB ceilings, economic fields, lineage anchors.
  - No RB crossing without mandatory human checkpoints.

## Module P3 — Constraint Vector & policy compilation

**Goal:** compile policy to machine-enforceable constraints.

- Units:
  - Constraint taxonomy and precedence
  - Hard vs soft constraints
  - Version pinning and jurisdictional binding
  - Test-case-backed constraint publication
- Required readings:
  - Framework v1.0a Chapter 12 (Governance Layer & GK v2)
  - Framework v1.0a Chapter 5–6 (Constraint consolidation and injection)
- Lab P3-L1: **Policy-to-constraints derivation.**  
Candidate SHALL output a full  $\langle C_{\text{legal}}, C_{\text{safety}}, C_{\text{econ}} \rangle$  vector from a policy excerpt and cite injection points. (Aligned to v1.0a governance competency tasks.)

- Pass criteria:
  - All constraints are enforceable, versioned, and non-contradictory.
  - Candidate shows clear understanding that constraint violation nulls action.

## **Module P4 — MCP contracts & agentic routing**

**Goal:** build admissible agent suites and deterministic routing.

- Units:
  - Capability Index use for selection
  - Contract fields: AB ceiling, admissible risk, cost caps, memory tiers
  - Arbitration triggers and critic loops
  - Failure semantics and rollback
- Required readings:
  - Framework v1.0a Chapter 10 (CI & MCP)
  - Framework v1.0a Appendix E (Contract Schema)
- Lab P4-L1: **Routing under constraints.**  
Candidate receives three agents with different ceilings and costs; SHALL bind each TG node to an admissible contract and justify rejections.
- Pass criteria:
  - Zero capability overreach in routing plan;
  - economic caps respected for every node.

## **Module P5 — Economic Circuit tuning & stability stewardship**

**Goal:** prevent economic bleed while maintaining SI stability and safe autonomy.

- Units:
  - Budget envelope design (B\_fin/B\_tokens/B\_time)
  - Economic admissibility gates and optimization loops
  - SI/HSS/SCP-keyed autonomy promotion constraints
  - Drift vs decay diagnosis and safe-mode response patterns
- Required readings:
  - Framework v1.0a Appendix B (Economic Circuit v2)
  - Framework v1.0a Chapter 14 (Failure Modes & Recovery)
  - Framework v1.0a Chapter 7–9 (metrics canon, for literacy only)
- Lab P5-L1: **Economic redesign.**  
Candidate SHALL reduce projected cost of a TG by  $\geq 30\%$  while preserving admissibility and demonstrating no SI degradation risk.
- Lab P5-L2: **Stability incident triage.**  
Candidate receives a red-band drift incident package and SHALL propose the

correct recovery path, including AB demotion and re-plan triggers.

- Pass criteria:
  - Candidate proposes only governance-admissible actions;
  - no metric redefinition;
  - clear slow-core vs fast-edge patch separation.

## 12.5 Required assessments and certification threshold

P-Track certification requires passing all module assessments plus a final integrative practicum.

### 1. Module assessments:

Each module SHALL conclude with:

- a short theory exam (open-framework), and
- a lab artifact review scored against canonical conformance.

Minimum passing score: **85% per module.**

### 2. Final Practicum (P-Capstone):

Candidate SHALL deliver a complete Symbiosis workflow package consisting of:

- normalized  $I_0^+$ ,
- finalized TG with AB/RB tagging,
- full constraint vector and version pin,
- MCP binding plan with routing justification,
- economic admissibility worksheet, and
- lineage/telemetry plan sufficient for replay.

The practicum **MUST** be evaluated by an I-Cert Instructor plus a G-Track reviewer if risk class  $\geq$  medium\_regret.

### 3. Certification issuance:

On passing, Governance SHALL issue a Practitioner (P-Cert) credential granting eligibility to design AB2+ workflows **only within domains explicitly authorized by local policy**. P-Cert does not itself elevate AB; AB transitions remain GK-governed.

## 12.6 Recertification and drift response

P-Track holders SHALL re-certify:

- every 6–12 months, or
- within 30 days following involvement in a Class-2+ incident, or
- after any major GK / policy engine update affecting their domain.

Repeated constraint violations or economic bleed incidents in a practitioner's workflows SHALL trigger targeted remediation and potential credential suspension per Part I governance rules.

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## Education-Binder SQC Gate Check (Chapter 12)

### **Gate 1 — Structural Fidelity to SETC TOC: PASS.**

Chapter is Part III, Chapter 12, scoped to P-Track only.

### **Gate 2 — Terminology Accuracy vs v1.0a: PASS.**

All primitives (I, TG, C, B, RB, AB, MCP, CI, MTM, lineage) align to canon and are used consistently.

### **Gate 3 — Canonical Metrics Non-Redefinition: PASS.**

SI/HSS/SCP/CI/RB/AB referenced for literacy and gating only; no formulas, weights, or thresholds introduced.

### **Gate 4 — Normative Technical Voice: PASS.**

MUST/SHALL/MAY used deterministically; no speculative or promotional modality.

### **Gate 5 — Cross-Reference Integrity: PASS.**

Readings and labs map to correct canonical chapters/appendices, especially Engine pipeline, TG spec, and MCP schema.

### **Gate 6 — Testability / Rubric-Readiness: PASS.**

Each module includes observable lab artifacts and quantitative pass thresholds.

### **Gate 7 — Governance & Anti-Gaming Alignment: PASS.**

Credential confers eligibility, not autonomy; AB remains GK-controlled; recert triggers align to canon.

### **Gate 8 — Completeness at Requested Granularity: PASS.**

Includes prerequisites, objectives, readings, labs, and pass criteria with no compression.

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Part III — Track Curricula (A-Layer)

Chapter 13 — Auditor / Governance Track Curriculum (G-Track)

Status: Normative education specification, SETC-v1.0

Canonical dependencies: Symbiosis Framework v1.0a (all Parts/Appendices) is supreme.

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## 13.1 Purpose and role boundary

The Auditor / Governance Track (G-Track) certifies personnel who are authorized to **verify Symbiosis compliance, adjudicate high-regret autonomy, and manage governance-layer evidence and recovery doctrine**. G-Track holders are the institutional custodians of:

- constraint supremacy (C),
- Regret Boundary and Autonomy Band regime integrity (RB/AB),
- lineage recoverability and audit sufficiency (L), and
- incident classified remediation with drift vs decay typing.

G-Track corresponds to the **Audit Review / Governance Body** functions in the canonical four-layer diagram and the mandatory Auditor Usage Protocol.

A certified G-Track auditor MAY render compliance decisions, issue AB promotion/demotion approvals (as a governance act), and sign off on external validation prior to AB3 scale.

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## 13.2 Audience and entry prerequisites

### 13.2.1 Intended audience

G-Track is mandatory for:

1. Internal or external auditors evaluating Symbiosis compliance claims.
2. Governance Leads who own policy overlays, RB/AB ceilings, sector CCMT bundles, and adoption gates.
3. Risk/compliance teams supervising S2+ incident packages, safe-mode activations, and autonomy restoration.
4. Regulators or delegated reviewers verifying audit readiness and lineage sufficiency.

### 13.2.2 Prerequisites

A G-Track candidate **MUST** meet all prerequisites:

1. **Foundation completion.** Candidate **MUST** pass Part II (Ch. 5–10).
  2. **Practitioner baseline.** Candidate **SHOULD** hold P-Cert or demonstrate equivalent TG/MCP and Economic Circuit literacy, because audits require recognizing upstream engineering errors and bleed mechanisms.
  3. **Governance authorization.** Candidate **MUST** be appointed or authorized by the local Governance Body to participate in compliance decisions.
  4. **Non-punitive posture acknowledgement.** Candidate **MUST** accept and uphold the Non-Punitive Covenant and HSS/SCP safety-only firewall.
- 

## 13.3 Governance-auditor role contract (Binding)

Certified auditors SHALL:

1. **Verify evidence sufficiency.** Confirm that every audited episode is reconstructable from lineage with minima: I + C + TG + AB/RB state + Economic Pass + telemetry required for SI audit.
2. **Enforce AB/RB integrity.** Validate that AB promotions meet prerequisites (SI stability, HSS readiness, SCP headroom, recovery readiness) and that no silent autonomy escalations occurred.
3. **Verify incident doctrine.** Ensure every S2+ incident has a complete O.4 evidence package and correct stability tags; absence of package is a G-layer evidence failure.
4. **Verify conformance tests and drills.** Confirm routine execution of O.5 conformance tests and O.6 Chaos Symbiosis drills with lineage proof.
5. **Validate policy versioning.** Confirm P<sub>v</sub> is pinned in lineage for audited episodes and that policy deltas are logged as mandated.
6. **Issue compliance judgments.** Render PASS / PARTIAL / FAIL on compliance claims using canonical SCC/SQC checklists; FAIL blocks AB restoration or scaling until remediated.
7. **Maintain non-punitive human-metrics discipline.** Prohibit HR/managerial misuse of HSS/SCP and require corrective action if detected.

Auditors SHALL treat governance authority as a dual-key safety function in high-regret sectors and SHALL not approve AB3 scale without external validation.

---

## 13.4 Learning objectives (Competency outcomes)

On completion, the G-Track auditor SHALL be able to:

### LO-G1: Perform lineage-grounded compliance audits

- Evaluate lineage reconstruction sufficiency and detect telemetry/anchor gaps.
- Execute SI audit replay using canonical procedure without reweighting SI.

### LO-G2: Validate AB/RB regime correctness

- Verify AB promotions/demotions are evidence-gated by SI stability, HSS readiness, SCP headroom, RB proximity rules, and recovery readiness.
- Detect autonomy creep or RB-checkpoint skipping.

### LO-G3: Adjudicate drift vs decay and route to correct recovery ladders

- Classify incidents as drift (semantic) or decay (operational) and enforce correct routing to canonical diagnostics.
- Require mandatory stability tags in incident packets.

### LO-G4: Enforce incident evidence doctrine



- Assemble and review O.4 packages for S2+ incidents; reject incomplete packages as G-04 evidence failures.

### **LO-G5: Verify economic and safety conformance infrastructure**

- Validate presence and recurrence of safe-mode, kill-switch, rollback, drift-gate, and entanglement-gate conformance tests.
- Verify Chaos Symbiosis drills scheduling and evidence.

### **LO-G6: Govern policy overlays and constraint catalogs**

- Author or review sector CCMT overlays and ensure constraints are compiled into machine-enforceable vectors and exported to the Constraint Catalog.

### **LO-G7: Apply SQC/SCC gates to education and production artifacts**

- Use the one-page SQC checklist as a deterministic Definition of Done and refuse inclusion of any artifact failing a gate.

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## **13.5 Required readings (Canonical)**

Candidates **MUST** complete the following v1.0a sources:

1. **Governance Layer & Adoption Bridges:** policy load, CCMT overlays, autonomy prerequisites.
2. **Incident Severity Classes and Runbooks (S0–S4) + stability tags:** drift vs decay coupling.
3. **Appendix O (Resilience / Audit doctrine):**
  - O.4 Required Incident Package for S2+.
  - O.5 Conformance tests before AB2+.
  - O.6 Chaos drills schedule and proofs.
  - O.7 Auditor Usage Protocol.
4. **Appendix P (SCC/SQC checklists):** mandatory gate usage.

Optional background (non-authoritative, for scenario contrast only): v0.9 “Governance Lead Track” outline.

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## **13.6 Curriculum modules (Lecture + Practice)**

G-Track **SHALL** comprise six modules. Each module has labs and assessed outputs.

### **Module G1 — Lineage sufficiency & audit replay**

**Goal:** deterministic audit competence.

- Units:
  1. Reconstruction sufficiency set and telemetry minima
  2. SI audit replay logic and divergence handling
  3. Shadow AI sampling doctrine
- Lab G1-L1: **Lineage sufficiency triage.**

Candidate receives three lineage slices; SHALL classify each as auditable / non-auditable and specify remediation.

**Pass:** zero false negatives on missing I/C/TG/AB/RB/EC anchors.
- Lab G1-L2: **SI audit replay.**

Candidate reconstructs one episode, replays SI per canon, and writes divergence note within tolerance  $\epsilon$ .

**Pass:** correct replay pathway; no SI math redefinition.

## Module G2 — AB/RB governance verification

**Goal:** autonomy regime integrity.

- Units:
  1. RB proximity classes and AB ceilings as binding constraints
  2. Promotion prerequisites and evidence requirements
  3. Detecting autonomy creep and checkpoint skipping
- Lab G2-L1: **Promotion packet review.**

Candidate reviews an AB promotion request and SHALL verify prerequisites (SI green, HSS readiness, SCP headroom, recovery readiness) from lineage; approve or reject.

**Pass:** decision matches evidence; no missing prerequisite.
- Lab G2-L2: **Autonomy-creep detection.**

Candidate samples episodes for RB skip / AB self-escalation attempts and writes a compliance finding.

**Pass:** identifies all injected RB skip signals.

## Module G3 — Incident doctrine & drift vs decay routing

**Goal:** safe-mode, recovery, and causal typing.

- Units:
  1. Severity classes S0–S4 and mandatory lineage fields
  2. Stability tags (Drift, Divergence, Resonance, Entanglement) and coupled actions

- 3. Drift vs decay routing and autonomy restoration locks
- Lab G3-L1: **O.4 package assembly.**  
Candidate produces a complete S2 incident evidence bundle from a lineage slice.  
**Pass:** all nine mandatory elements present; absence flagged as G-04.
- Lab G3-L2: **Typing drill.**  
Candidate classifies three incidents as drift vs decay (or both with primary/secondary tags) and assigns recovery ladder.  
**Pass:** correct tag selection and routing.

## Module G4 — Conformance tests and Chaos Symbiosis verification

**Goal:** continuous resilience evidence assurance.

- Units:
  1. O.5 conformance tests before AB2+
  2. O.6 drill cadence and proof artifacts
  3. Organizational safe-mode fitness
- Lab G4-L1: **Conformance test audit.**  
Candidate verifies quarterly safe-mode, kill-switch, rollback, drift-gate, and entanglement-gate tests exist with lineage proof.  
**Pass:** catches any missing test or stale cadence.
- Lab G4-L2: **Chaos drill proof review.**  
Candidate reviews monthly and quarterly drill logs and writes a compliance verdict.  
**Pass:** verifies each drill's required proof artifact.

## Module G5 — Policy overlays & Constraint Catalog governance

**Goal:** machine-enforceable policy stewardship.

- Units:
  1. Sector CCMT overlay compilation
  2. Constraint Catalog export and version control
  3. Policy delta logging and enforcement
- Lab G5-L1: **Overlay compilation exercise.**  
Candidate converts a sector policy excerpt into a CCMT overlay and constraint vector draft, with version pin.  
**Pass:** constraints are enforceable, non-contradictory, and catalog-ready.

## Module G6 — SQC/SCC gate application and appeals

**Goal:** deterministic quality enforcement and fair adjudication.

- Units:
    1. SCC vs SQC boundary (compliance vs drafting quality)
    2. Gate-check execution as Definition of Done
    3. Appeals and anti-gaming posture
  - Lab G6-L1: **Gate-check practicum.**

Candidate runs full SQC on a draft artifact and must rewrite any FAIL subsection until PASS.

**Pass:** all eight gates PASS with explicit remediation notes.
- 

## 13.7 Assessment model and passing criteria

### 13.7.1 Theory exam

- Format: closed-book + structured scenario short answers.
- Coverage: LO-G1 through LO-G7.
- Pass threshold: **≥ 90%** (higher standard due to regulatory implications).

### 13.7.2 Practical evaluation

Candidate **MUST** pass all labs G1-L1 through G6-L1. Automatic failure triggers include:

1. approving an AB promotion without evidence prerequisites;
2. accepting an incomplete O.4 package;
3. mis-typing drift vs decay;
4. failing to detect missing conformance tests or drill proofs; or
5. introducing non-canonical metrics/thresholds.

### 13.7.3 Certification issuance

On passing, the candidate **SHALL** be granted **G-Cert**. G-Cert confers authority to sign compliance findings and autonomy approvals **only under an active Governance Body charter and within policy-defined domains**.

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## 13.8 Recertification and continuous calibration

1. G-Cert holders **SHALL** re-certify at least annually, or immediately following:
  - a. any S3+ incident involvement,
  - b. major GK or sector CCMT changes, or
  - c. evidence failures affecting audit integrity. (Cadence mechanics finalized in Part V.)

2. Governance Bodies SHALL perform cross-rater calibration on audit verdicts quarterly to prevent inconsistency and gaming.

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## Education-Binder SQC Gate Check — Chapter 13

Gate 1 — Structural Fidelity to SETC TOC: **PASS**.

Generated only Part III, Chapter 13 with required components; no reordering.

Gate 2 — v1.0a Canon Supremacy: **PASS**.

All normative duties/requirements cite v1.0a governance, incident, and auditor-protocol canon; v0.9 used only as optional contrast.

Gate 3 — Canonical Metrics Non-Redefinition: **PASS**.

SI/HSS/SCP/CI/RB/AB referenced for literacy and gating only; no equations, weights, or new thresholds introduced.

Gate 4 — Normative Technical Voice: **PASS**.

MUST/SHALL/MAY used precisely; marketing or speculative framing excluded.

Gate 5 — Mechanistic Testability: **PASS**.

Modules and labs specify inputs → tasks → pass criteria; compliance actions are deterministic and auditable.

Gate 6 — Lineage Recoverability Emphasis: **PASS**.

Reconstruction sufficiency and O.4 package doctrine are explicit and canon-aligned.

Gate 7 — Drift vs Decay Typing: **PASS**.

Mandatory stability tags and routing requirements preserved without redefining taxonomy.

Gate 8 — Abuse / Incentive Hardening: **PASS**.

Non-punitive human-metrics firewall enforced; anti-gaming and appeals posture included.

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Part III — Track Curricula (A-Layer)

Chapter 14 — Instructor Track Curriculum (I-Track)

Status: Normative (SETC-v1.0). Framework v1.0a is canonical; this chapter is education-layer only.

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## 14.0 Purpose

The Instructor Track (I-Track) specifies the required competencies, training sequence, and assessment standards for individuals who deliver Symbiosis education and administer certification for other tracks. The I-Track is a program function that supports the Framework's certification governance requirements. Instructors SHALL operate as fidelity stewards of Framework v1.0a, ensuring that training, scenarios, and exams produce defensible Symbiosis-compliant operators, practitioners, and governance leads.

Certification in Symbiosis is explicitly a governance act rather than a managerial convenience; therefore, instructor competency SHALL be treated as a control surface for safe autonomy expansion and adoption integrity.

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## 14.1 Intended Audience

This chapter applies to:

1. Prospective and active Symbiosis instructors responsible for curriculum delivery and evaluation.
2. Organizational training leads standing up internal Symbiosis literacy or certification programs.
3. Governance bodies authorizing instructors to conduct scenario and exam assessments.

I-Track candidates are expected to already possess at least one operational role competency (O-Track, P-Track, or G-Track) and to be capable of teaching across tracks without redefining canonical metrics or invariants.

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## 14.2 Role Definition (Program-Layer)

An I-Track Instructor is a certified educator who SHALL:

1. Deliver Framework-aligned instruction across F-Layer and track-specific A-Layer content.
2. Administer and score S-Layer scenarios and C-Layer exams using SETC rubrics.
3. Enforce canonical discipline: terminology, invariants, layer boundaries, and metric non-redefinition.
4. Maintain Non-Punitive Covenant compliance in all instruction and evaluation contexts.
5. Produce auditable training and certification evidence suitable for internal boards and regulators, consistent with the Certification Evidence Packet (CEP) doctrine.

Instructor authority is confined to assessment and pedagogy. Instructors SHALL NOT originate or modify Framework canon, risk-class thresholds, AB/RB ceilings, or any canonical metric definitions. Those are Governance Layer prerogatives.

---

## 14.3 Prerequisites

An I-Track candidate **MUST** meet all of the following before entering I-Track certification:

1. **Foundation completion.** Verified completion of SETC Part II (Chapters 5–10).
2. **Track competence.** Active certification in at least one of:
  - O-Cert (Operator),
  - P-Cert (Practitioner), or
  - G-Cert (Governance/Auditor).

Rationale: I-Track instruction requires lived procedural competence to prevent “oversight theater” in training and to keep scenario scoring mechanistic and testable.
3. **Governance literacy.** Demonstrated ability to explain and apply:
  - Four-Layer Architecture duties and no-bypass rules,
  - Constraint supremacy,
  - Lineage recoverability requirements, and
  - Certification ladder coupling to AB rights.

---

## 14.4 Learning Objectives

Upon completion, an Instructor **SHALL** be able to:

1. **Canon Fidelity Delivery.**
    - Teach Framework v1.0a concepts without terminological drift and without metric redefinition.
  2. **Scenario Orchestration.**
    - Build and run S-Layer scenarios using the canonical scenario template and difficulty bands.
  3. **Assessment & Rubric Discipline.**
    - Score labs and exams reliably, producing consistent pass/fail outcomes with audit traces.
  4. **Governance-Aligned Certification.**
    - Administer certification in a manner that correctly couples certification tier to AB authorization and respects dual-gate rules (SI stability, HSS readiness, SCP headroom).
  5. **Ethical Firewall Enforcement.**
    - Ensure HSS/SCP are used only as safety and developmental telemetry; prevent punitive or HR-linked misuse in training contexts.
  6. **Defensible Evidence Production.**
    - Produce complete Certification Evidence Packets (CEP-equivalent training artifacts) sufficient for lineage-rooted review.
-

## 14.5 Curriculum Structure (A-Layer)

I-Track is organized into six instructional units (I-1 through I-6). Each unit includes lecture modules, labs, and an assessment gate. Completion is sequential and cumulative.

### I-1 — Canon Stewardship & Pedagogical Contract

#### Objectives

- Internalize Framework axioms and derived invariants as teaching constraints.
- Apply SQC disciplines to lesson design.

#### Required readings

- Framework Ch.1 Reader Contract & SQC.
- Framework Ch.2 Axioms & primitives.

#### Lab I-1A

- Candidate redlines a provided “drifted” lesson plan to restore v1.0a terminology and remove illicit metric redefinitions.

#### Pass criteria

- 100% correction of canon violations; no new violations introduced.
- 

### I-2 — Teaching the Four-Layer Architecture & Engine Literacy

#### Objectives

- Teach layer duties and boundary rules with mechanistic precision.
- Teach the 10-Stage Engine pipeline and gating logic.

#### Required readings

- Framework Part II (Four-Layer Architecture; Human/Engine/Agentic/Governance duties).
- Framework Part IV overview of pipeline and failure doctrine (as referenced in SETC Part II).

#### Lab I-2A

- Candidate delivers a 45-minute mock lecture to peers on layer boundaries and pipeline checkpoints, including common boundary-violation traps.

#### Pass criteria



- Lecture includes all mandatory boundary non-bypass rules and telemetry minima; peers score  $\geq 3.5/4$  on accuracy and clarity.
- 

### **I-3 — Canonical Metrics Literacy Instruction (Reference-Only Teaching)**

#### **Objectives**

- Teach SI, HSS v2.0, SCP, CI, RB v2, AB schema strictly by reference to Part III.
- Teach dual-gate promotion logic without inventing thresholds.

#### **Required readings**

- Framework Part III (canonical metrics).
- Framework Ch.17 dual-gate and rights coupling rules.

#### **Lab I-3A**

- Candidate leads a seminar where learners interpret a sample episode's SI/HSS/SCP/AB/RB telemetry and determine the correct autonomy decision.

#### **Pass criteria**

- Candidate avoids redefinition, uses only canonical language, and correctly routes decisions through dual-gate logic.
- 

### **I-4 — Scenario & Simulation Design (S-Layer production competence)**

#### **Objectives**

- Design scenarios that test real competency, not rote recall.
- Tune scenarios to difficulty bands and risk classes.

#### **Required readings**

- SETC Part IV Chapter 15 (Scenario Design Standard) once issued.
- Framework no-bypass / lineage rules for scenario integrity.

#### **Lab I-4A**

- Candidate authors:
  1. one Operator scenario,
  2. one Practitioner TG-design scenario, and
  3. one Governance audit scenario,each with explicit success conditions and required evidence outputs.

#### **Pass criteria**

- Scenarios are fully typed, testable, and map to canonical primitives without adding new ones.
- 

## **I-5 — Exam Administration & Anti-Gaming Discipline**

### **Objectives**

- Administer C-Layer exams and practicals with integrity.
- Detect and mitigate gaming behaviors while preserving Non-Punitive Covenant.

### **Required readings**

- Framework SQC Gate 7 (Abuse & Incentive Hardening).
- Framework Ch.17 validation pillars and evidence requirements.

### **Lab I-5A**

- Candidate runs a full mock exam session, scores against master rubrics, and produces a defensible decision memo.

### **Pass criteria**

- Scoring variance within tolerance of gold-standard key; decision memo is lineage-rooted and non-punitive.
- 

## **I-6 — Instructor Practicum & Accreditation Board**

### **Objectives**

- Demonstrate end-to-end teaching, scenario orchestration, and certification issuance.
- Produce complete training evidence bundle.

### **Lab I-6A (Capstone)**

- Candidate teaches a mini-course (two sessions), runs one scenario practical, administers a short exam, and submits a Training Evidence Packet comprising:
  - lesson slides/notes,
  - scenario materials,
  - anonymized scoring sheets,
  - pass/fail rationale memos,
  - compliance attestation for Non-Punitive Covenant.

### **Pass criteria**

- Accreditation board verifies:
  1. canon fidelity,

2. mechanistic testability of assessments,
  3. evidence completeness,
  4. zero unsafe autonomy coaching patterns.
- 

## 14.6 Instructor Certification Thresholds

1. **Theory minimum:** ≥95% on I-Track theory exam.
  2. **Practical minimum:** PASS on all six unit labs.
  3. **Reliability requirement:** Inter-rater scoring reliability ≥0.85 when compared to board gold standard.
  4. **Covenant compliance:** Any punitive framing or HR-linked usage of HSS/SCP is an automatic FAIL.
- 

## 14.7 Recertification & Drift Monitoring

1. **Cadence:** Instructors MUST recertify every 12 months, or within 30 days of any major Framework v1.x canonical update that affects training content.
  2. **Trigger conditions:**
    - repeated scoring drift,
    - scenario design violations, or
    - any Class-2+ incident involving training malpractice SHALL trigger immediate instructor review and potential suspension pending recertification.  
(Incident and adoption coupling logic aligns to v1.0a demotion and certification governance doctrine.)
- 

## Education-Binder SQC Gate Check — Chapter 14

### Gate 1 — **Structural Fidelity / Layer Integrity:** PASS

I-Track duties are program-layer (education) only and explicitly do not bypass or reassign Framework layer responsibilities.

### Gate 2 — **Terminology Accuracy:** PASS

All core terms (H, E, A, G, I, C, B, TG, AB, RB, SI, HSS v2.0, SCP, CI, SQC) are used consistent with Framework v1.0a.

### Gate 3 — **Canonical Metrics Non-Redefinition:** PASS

No formulas, weights, or thresholds for SI/HSS/SCP/CI/RB/AB are redefined; instruction is reference-only.

### Gate 4 — **Normative Technical Voice:** PASS

Requirements use MUST/SHALL/MAY precisely; no marketing tone.

#### Gate 5 — **Change Spec Alignment:** PASS

Content aligns to certification governance principles (earned autonomy, dual-gate, rights coupling).

#### Gate 6 — **Cross-Reference Integrity:** PASS

All canon claims are tied to v1.0a references; older drafts are used only implicitly for pedagogy patterns, not authority.

#### Gate 7 — **Testability / Anti-Gaming:** PASS

Labs and pass criteria are operationally checkable; explicit anti-gaming and Non-Punitive enforcement are included.

#### Gate 8 — **Completeness for Track Purpose:** PASS

Provides prerequisites, objectives, units, labs, pass criteria, thresholds, and recertification rules adequate to run I-Track deterministically.

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### Part IV — Scenario & Lab Bank (S-Layer)

#### Chapter 15 — Scenario Design Standard (Canonical Template + Difficulty Bands)

Status: Normative education specification, SETC-v1.0.

Canon anchor: Symbiosis Framework v1.0a is supreme. Scenario artifacts **MUST** remain tethered to Symbiosis ontology, invariants, architecture, and canonical metrics; custom metaphors that contradict canon are forbidden.

Canonical metrics remain confined to Framework Part III; scenarios **MAY** reference SI/HSS/SCP/CI/RB/AB but **SHALL NOT** redefine or reweight them.

---

## 15.0 Purpose

1. This chapter defines the **standard scenario specification** for all SETC scenario banks (Chapters 16–20) and for capstone evaluations.
2. A “scenario” is a structured, testable Symbiosis episode (or episode bundle) used to assess track competencies under controlled constraints and autonomy ceilings.
3. Every scenario **MUST** be auditable and replayable: it **SHALL** include sufficient information to reconstruct intent, constraints, TG, AB/RB state, economic admissibility, and lineage commitments. This mirrors the framework’s auditability doctrine.
4. Scenario design is a **governance-safety control surface**. Scenarios **MUST** not teach unsafe autonomy behavior, bypass any layer, or normalize non-compliant workarounds.

---

## 15.1 Normative Design Principles (Binding)

All scenarios in SETC SHALL satisfy these principles:

1. **Canon Fidelity.**
  - a. Use only v1.0a terminology and primitives.
  - b. If earlier drafts differ, v1.0a prevails.
2. **Layer Integrity / No Bypass.**
  - a. Scenarios MUST preserve the Four-Layer boundary duties.
  - b. Scenarios MUST NOT require a learner to perform a duty reserved for another layer (e.g., operator setting AB ceilings).
3. **Constraint Supremacy.**
  - a. Constraints SHALL be explicit, typed, and precedence-ordered.
  - b. Any constraint breach is a scenario FAIL unless the learner correctly halts or rescopes.
4. **Bounded Autonomy.**
  - a. Intended AB ceilings MUST be stated as references only.
  - b. Autonomy ceilings are governance-assigned; scenarios SHALL test correct behavior under the stated ceiling, not invent new bands.
5. **Lineage Recoverability.**
  - a. Scenarios MUST specify required lineage commits and telemetry minima.
  - b. Any scenario outcome without declared lineage is non-compliant and invalid for scoring.
6. **Non-Punitive Covenant.**
  - a. Scenarios MAY measure or surface HSS/SCP as safety telemetry, but MUST forbid punitive or HR-linked use.
7. **Mechanistic Testability.**
  - a. Every scenario MUST have explicit success conditions, failure conditions, and scoring evidence.
  - b. Learner evaluation MUST be reproducible across instructors.

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## 15.2 Canonical Scenario Specification Template (Required Fields)

Every scenario artifact MUST be authored using the following template. Fields are mandatory unless marked OPTIONAL.

### 15.2.1 Scenario header

1. **Scenario ID:** SETC-S-[Track]-[Number]-v[Semver].
2. **Track Eligibility:** O-Track / P-Track / G-Track / I-Track / Cross-Track.
3. **Difficulty Band:** D0 / D1 / D2 / D3 (per §15.3).
4. **Domain / Sector:** explicit domain context.
5. **Risk Class (RC):** Low / Medium / High regret class per local governance matrices. (RC is canonical; difficulty is separate.)
6. **Intended AB Ceiling:** AB0–AB3 reference only, governance-assigned.
7. **Non-delegable decisions list:** explicit Band-0 decisions for this scenario.
8. **Estimated Economic Envelope:** B\_fin / B\_tokens / B\_time boundary; used to test economic admissibility behavior.
9. **Required Memory Tier(s):** MTM tier required for admissibility (reference only).

### 15.2.2 Context and starting state

1. **Problem Narrative (3–8 lines):** what the human is trying to achieve and why it matters.
2. **Actors and roles:**
  - a. Human role(s) (Operator, Practitioner, Auditor).
  - b. Any supervising governance actors invoked only at checkpoints.
3. **Initial intent surface:**
  - a. Provide  $I_0$  draft if learner must normalize; else provide  $I_0^+$  as baseline.
4. **Initial constraints:**
  - a. C\_legal, C\_safety, C\_econ explicitly stated.
  - b. Identify which are hard vs soft.
5. **Starting telemetry snapshot (OPTIONAL):** SI/HSS/SCP/CI bands included only if needed to test interpretation, not to teach new thresholds.

### 15.2.3 Task Graph and autonomy structure (if applicable)

1. **Reference TG:**
  - a. Provide TG skeleton or node list.
  - b. Indicate dependencies and required checkpoints.
2. **Checkpoint map:**
  - a. RB-tagged checkpoints with the required human action type (approve / modify / demote / halt).
3. **Autonomy preconditions:**
  - a. Any admissibility gates that must be satisfied before proceeding (policy pinning, constraints satisfied, economic pass).
4. **Allowed tools/agents:**
  - a. Admissible tool list (subset of MCP admissible tools); prohibited tools explicit. (Reference-only alignment to MCP admissibility framing.)

### 15.2.4 Learner tasks (what must be produced)

1. **Primary task list:** ordered list of actions the learner must take.
2. **Required artifacts:** what the learner must submit (e.g., normalized I, revised TG, constraint delta, approval memo, audit verdict).
3. **Required lineage entries:** which decisions **MUST** be logged and why.

### 15.2.5 Success conditions (PASS criteria)

PASS criteria **MUST** be stated as **observable outcomes** and **SHALL** include:

1. **Constraint adherence:** no hard constraint violations; soft constraints optimized only after hard compliance.
2. **Correct AB/RB behavior:** approvals/demotions match evidence and AB ceiling.
3. **Economic admissibility:** learner halts/rescopes if economic pass fails.
4. **Lineage sufficiency:** required commits exist and are coherent.
5. **Track-specific competence:** mapping to the track LO being tested.

### 15.2.6 Failure conditions (FAIL criteria)

FAIL criteria **MUST** be explicit. At minimum include:

1. Any hard constraint breach the learner fails to detect or stop.
2. Any RB checkpoint skipped or rubber-stamped without evidence.
3. Any autonomy escalation attempt beyond the intended AB ceiling.
4. Any missing required lineage commit.
5. Any use of HSS/SCP as punitive evaluation.

### 15.2.7 Scoring rubric linkage

1. **Rubric ID:** reference to Part V master rubric section.
  2. **Weights:** stated only as rubric references; do not invent local weights here.
  3. **Evidence bundle required for scoring:** list of artifacts the instructor must collect for audit.
- 

## 15.3 Difficulty Bands (Education-Layer, Binding)

Difficulty Bands are **training constructs** to scale scenario complexity. They **SHALL NOT** be confused with Risk Class or Autonomy Bands (both canonical).

Each scenario **MUST** declare a Difficulty Band D0–D3:

### D0 — Foundational / Single-Loop

- **Use:** early F-Layer and O-Track entry scenarios.
- **Characteristics:**
  1. Single intent, 1–3 TG nodes or direct Engine action.
  2. Low branching; 0–1 RB checkpoints.

3. Economic envelope simple (one budget boundary).
4. Focus on intent clarity + constraint recognition.

## D1 — Multi-Step / Bounded Forks

- **Use:** late O-Track, early P-Track.
- **Characteristics:**
  1. 3–7 TG nodes with dependencies.
  2. At least one checkpoint requiring explicit approval rationale.
  3. One controlled fork or remediation step.
  4. Tests correct AB ceiling compliance under normal conditions.

## D2 — Governance-Sensitive / Drift-Aware

- **Use:** core P-Track and entry G-Track.
- **Characteristics:**
  1. 7–15 nodes and/or multi-lane TG.
  2. Multiple RB checkpoints including at least one demotion decision.
  3. Includes telemetry interpretation for stability (e.g., drift/decay signals) without changing canon math.
  4. Requires lineage sufficiency validation.
  5. May include medium-regret RC.

## D3 — High-Fidelity / Incident-Class

- **Use:** advanced G-Track, I-Track scenario authorship, cross-track capstones.
- **Characteristics:**
  1. Multi-episode bundle or long-horizon TG, potentially with Safe-Mode entry.
  2. Includes S2-class incident evidence packaging and drift vs decay adjudication.
  3. Requires deterministic replay and compliance verdict.
  4. May include high-regret RC but always with explicit non-delegable decisions and AB ceilings.
  5. Full evidence bundle required, aligned to incident packet doctrine.

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# 15.4 Scenario Publication and Versioning Rules

1. **Version control:** every scenario SHALL be versioned; any semantic change MUST increment minor or major semver.
2. **Canon tether:** scenario narratives SHALL include a “Canon Cross-Refs” block listing the v1.0a chapters/appendices that ground the scenario. External or custom metaphors are forbidden.
3. **Redlines:** any scenario revision after initial release MUST include a concise redline map and rationale. (Aligned with v1.x frozen-canon and delta discipline.)



4. **Audit storage:** final scenario packs SHALL be stored with printable rubric forms and lineage minima checklist.
- 

## 15.5 Mandatory Scenario Quality Gates (Scenario-Level SQC)

Before inclusion in any bank, a scenario MUST PASS:

1. **S-Gate 1 — Canon Fidelity:** uses only v1.0a terms and structures.
2. **S-Gate 2 — Layer Integrity:** no task requires layer bypass.
3. **S-Gate 3 — Metric Non-Redefinition:** no new formulas, weights, or thresholds for canonical metrics.
4. **S-Gate 4 — Constraint Explicitness:** C\_legal/C\_safety/C\_econ explicit, hard/soft typed.
5. **S-Gate 5 — AB/RB Correctness:** AB ceiling and RB checkpoints stated and respected.
6. **S-Gate 6 — Lineage Recoverability:** required commits and telemetry minima specified.
7. **S-Gate 7 — Testability:** PASS/FAIL criteria observable; rubric linkage explicit.
8. **S-Gate 8 — Non-Punitive Compliance:** HSS/SCP used only as safety telemetry; punitive use forbidden.

(These mirror the canonical gate logic used in v1.0a pilot and audit templates while remaining education-layer specific.)

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## Education-Binder SQC Gate Check — Chapter 15

Gate 1 — Structural Fidelity to SETC TOC: PASS

Produced only Part IV, Chapter 15.

Gate 2 — v1.0a Canon Supremacy: PASS

Template and rules are grounded in v1.0a invariants: canon tethering, metric confinement, audit/lineage doctrine, constraint and AB governance.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

Difficulty bands are education-layer only; no SI/HSS/SCP/CI/RB/AB math, weights, or numeric thresholds introduced.

Gate 4 — Normative Technical Voice: PASS

All requirements use MUST/SHALL/MAY; no speculative or marketing tone.

#### Gate 5 — Mechanistic Testability: PASS

Required scenario fields, PASS/FAIL conditions, and rubric evidence are explicit and auditable.

#### Gate 6 — Lineage / Audit Cross-Reference Integrity: PASS

Scenario template mandates reconstruction sufficiency and lineage commits aligned to canon.

#### Gate 7 — Abuse / Incentive Hardening: PASS

Non-punitive firewall is a mandatory scenario gate.

#### Gate 8 — Completeness at Requested Granularity: PASS

Includes canonical template, difficulty bands, versioning, and scenario-quality gates.

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### Part IV — Scenario & Lab Bank (S-Layer)

#### Chapter 16 — Operator Scenario Bank (O-Track)

Status: Normative scenario bank, SETC-v1.0.

All scenarios follow Chapter 15 template and align to Framework v1.0a invariants: Human Primacy, Constraint Supremacy, Economic Viability, Telemetry/Lineage mandatory.

Operator failure modes targeted include H-01 through H-05.

HSS/SCP remain safety metrics only; punitive use is forbidden.

---

##### 16.1 Bank overview and usage rules

1. This bank provides canonical Operator scenarios for training, flight hours, and O-Cert evaluations.
2. Instructors SHALL select scenarios according to: learner HSS band eligibility, domain risk class, and intended AB ceiling. HSS-B1 learners SHALL NOT be assigned RB-proximate scenarios.
3. Every scenario MUST produce lineage-ready artifacts and be scored using Part V rubrics (reference only).
4. These scenarios test Operator duties only; they SHALL NOT require Practitioner-only TG authoring or Governance-only AB ceiling assignment. Layer bypass is prohibited.

---

## 16.2 Operator scenarios (SETC-S-O)

### Scenario SETC-S-O-01-v1.0 — Intent Underspecification Repair

Track Eligibility: O-Track

Difficulty Band: D0

Domain/Sector: General productivity

Risk Class (RC): Low

Intended AB Ceiling: AB0–AB1 (reference)

Non-delegables: final intent scope; all approvals

Estimated Economic Envelope: B\_tokens small; TTL short

Required MTM Tier: MTM-0 (reference)

#### Problem Narrative:

Operator receives a vague request from a stakeholder (“make a plan to improve our onboarding”). The draft intent lacks scope, constraints, and Definition-of-Done.

#### Starting State:

$I_0$  is underspecified; no explicit constraints; no budget.

No TG provided.

#### Learner Tasks:

1. Normalize  $I_0 \rightarrow I_0^+$  with required fields (goal, scope, constraints, budget, DoD).
2. Identify missing constraints and explicitly ask for required clarifications.
3. Declare a budget envelope B. Economic Circuit requires B for admissibility.

#### Required Artifacts:

$I_0^+$  in schema form.

Clarification list.

Budget envelope declaration.

Success (PASS) Conditions:

I<sub>0</sub><sup>+</sup> includes all mandatory intent fields.

No invented goals; only clarified scope.

C\_legal/C\_safety/C\_econ expressed or explicitly marked “pending” with questions.

B declared and within reasonable bounds for RC-Low.

Targets H-01 prevention.

Failure (FAIL) Conditions:

Any mandatory intent field absent.

Goal invention or scope creep.

Proceeding without B.

Rubric Link: O-Rubric-IC/CA/CD (Part V ref).

---

Scenario SETC-S-O-02-v1.0 — Constraint Conflict Triage

Track Eligibility: O-Track

Difficulty Band: D1

Domain/Sector: Public communications

RC: Medium

Intended AB Ceiling: AB1–AB2 (reference)

Non-delegables: safety constraint confirmation at checkpoints

Economic Envelope: B\_fin modest; TTL medium

MTM Tier: MTM-1

Problem Narrative:

Operator must draft a public update based on internal data. Legal policy forbids disclosure of specific figures; business sponsor asks for exact numbers.

Starting State:

I<sub>0</sub> includes conflicting constraints between C\_legal and C\_goal.

Constraint vector is partially specified.

Learner Tasks:

1. Detect the constraint conflict.
2. Rescope the intent to satisfy C\_legal supremacy.
3. Reject the sponsor's request if conflict cannot be resolved under constraints. Constraint supremacy is a hard invariant.

Artifacts:

Constraint conflict note.

Revised  $I_o^+$  with compliant constraints.

Rationale log for rescope/rejection.

PASS Conditions:

Hard constraint precedence applied correctly.

Revised intent is legally compliant and still meaningful.

Rationale is lineage-ready.

Targets HSS-2 / H-01.

FAIL Conditions:

Allowing disclosure contrary to C\_legal.

Treating constraints as negotiable optimization.

Missing rationale.

Rubric Link: O-Rubric-CA.

---

## Scenario SETC-S-O-03-v1.0 — RB Checkpoint Adjudication

Track Eligibility: O-Track

Difficulty Band: D1

Domain/Sector: Data operations

RC: Medium

Intended AB Ceiling: AB2 (reference; only for HSS-B2+ learners)

Non-delegables: RB crossing approval

Economic Envelope: B\_tokens medium

MTM Tier: MTM-1

### Problem Narrative:

Engine pauses at an RB checkpoint before applying a transformation to production data.

### Starting State:

I<sup>o</sup> and constraints are valid.

TG includes a flagged RB-prox node requiring approval.

Engine provides an evidence trace snapshot.

### Learner Tasks:

1. Review evidence trace.
2. Approve, modify, or demote autonomy per evidence.
3. Log rationale.

### Artifacts:

Checkpoint decision record.

Edited plan if modification.

Rationale note.

### PASS Conditions:

Decision matches evidence and constraints.

Correctly denies or demotes if evidence insufficient.

Rationale stated in operational terms.

Targets HSS-3 and H-02 avoidance.

FAIL Conditions:

Rubber-stamp approval without evidence.

Skipping checkpoint.

No rationale.

Rubric Link: O-Rubric-CD/RB-Behavior.

---

Scenario SETC-S-O-04-v1.0 — Trust Overcalibration Detection

Track Eligibility: O-Track

Difficulty Band: D1

Domain/Sector: Healthcare admin (synthetic)

RC: Medium

Intended AB Ceiling: AB1–AB2 (reference)

Non-delegables: final recommendation acceptance

Economic Envelope: B\_fin modest

MTM Tier: MTM-1

Problem Narrative:

A decision support agent proposes a plan that looks plausible but subtly violates a safety constraint.

Starting State:

Constraints are clear.

Agent proposal is presented with high confidence.

Evidence trace shows a weak source.

Learner Tasks:

1. Identify signs of over-trust risk.

2. Cross-check proposal against constraints.

3. Issue a corrective override and request re-plan if needed.

Artifacts:

Override diff.

Constraint-violation note.

Re-plan request.

PASS Conditions:

Learner detects hidden error and refuses blind acceptance.

Override is specific and constraint-anchored.

Targets H-02.

FAIL Conditions:

Accepting proposal without verification.

Override lacks specificity or breaks constraints.

Rubric Link: O-Rubric-Trust Calibration.

---

Scenario SETC-S-O-05-v1.0 — Trust Under-Delegation (Efficiency Failure)

Track Eligibility: O-Track

Difficulty Band: D1

Domain/Sector: Research support

RC: Low

Intended AB Ceiling: AB1 (reference)

Non-delegables: none beyond normal approvals

Economic Envelope: B\_tokens medium

MTM Tier: MTM-0/1



Problem Narrative:

Operator refuses to delegate low-risk subtasks, repeatedly overriding trivial routing despite evidence of safe admissibility.

Starting State:

TG includes low-risk nodes below RB.

Evidence supports safe delegation.

Learner Tasks:

1. Identify under-delegation pattern.
2. Adjust supervision to allow admissible delegation.
3. Preserve constraint checks while reducing unnecessary overrides.

Artifacts:

Supervision adjustment note.

Rationale addressing efficiency without AB creep.

PASS Conditions:

Learner permits safe delegation while maintaining constraints.  
Targets H-03.

FAIL Conditions:

Chronic override with no safety basis.

Attempting to increase AB ceiling without governance.

Rubric Link: O-Rubric-Delegation Balance.

---

## Scenario SETC-S-O-06-v1.0 — SCP Saturation / Oversight Theater Response

Track Eligibility: O-Track

Difficulty Band: D2

Domain/Sector: Multi-task operations

RC: Medium

Intended AB Ceiling: AB2 (reference; HSS-B2+)

Non-delegables: checkpoint batching decision

Economic Envelope: B\_time tight; TTL medium

MTM Tier: MTM-1

### Problem Narrative:

Operator supervises too many parallel TG lanes. Engine flags SCP headroom depletion and rising checkpoint latency.

### Starting State:

Multiple TG lanes active.

SCP near saturation; Engine recommends throttle/batching. SCP is treated as concurrency budget.

No incident yet.

### Learner Tasks:

1. Accept throttle or reduce concurrency.
2. Batch checkpoints and pause non-urgent lanes.
3. Log an oversight-theater prevention action.

### Artifacts:

Concurrency reduction plan.

Batch/summary checkpoint directive.

Lineage rationale.

### PASS Conditions:

Learner prevents oversight theater and accepts Engine safeguards.  
Targets H-04.

FAIL Conditions:

Ignoring SCP throttle advisories.

Continuing high concurrency leading to shallow approvals.

Rubric Link: O-Rubric-CLR/SCP Discipline.

---

Scenario SETC-S-O-07-v1.0 — Shadow Symbiosis Detection

Track Eligibility: O-Track

Difficulty Band: D2

Domain/Sector: Enterprise operations

RC: Medium

Intended AB Ceiling: AB1–AB2 (reference)

Non-delegables: halt/escalation decision

Economic Envelope: any

MTM Tier: MTM-1

Problem Narrative:

Operator discovers a colleague bypassed the Engine and used an external agent without lineage or constraints, then imported outputs into a live workflow.

Starting State:

Output artifact exists with no I/C/TG anchors.

Governance policy requires lineage minima; missing fields are lineage failure.

Learner Tasks:

1. Identify this as a Shadow Symbiosis / governance bypass.
2. Halt use of the artifact.
3. Escalate to Governance and require re-entry through a compliant intent path.

Artifacts:

Shadow Symbiosis finding note.

Halt action log.

Escalation memo.

PASS Conditions:

Learner refuses non-auditable outputs.

Escalation includes required lineage failure rationale.  
Targets H-05.

FAIL Conditions:

Using artifact without reconstructable lineage.

“Back-filling” constraints after the fact to justify use.

Rubric Link: O-Rubric-Lineage Integrity.

---

Scenario SETC-S-O-08-v1.0 — Economic Pass Failure and Rescope

Track Eligibility: O-Track

Difficulty Band: D1

Domain/Sector: Content modernization

RC: Low–Medium

Intended AB Ceiling: AB1 (reference)

Non-delegables: budget override decision

Economic Envelope: B\_tokens small by design

MTM Tier: MTM-0/1

Problem Narrative:

Planner produces TG with projected cost above B. Engine requests rescope or explicit budget override.

Starting State:

I<sub>0</sub><sup>+</sup> valid.

Economic Pass shows Projected\_Cost > B. Execution may not proceed unless admissible.

Learner Tasks:

1. Review Economic Pass evidence.
2. Choose one: rescope intent, reduce TG demands, or provide explicit override (with rationale).
3. Log decision.

Artifacts:

Rescoped I or reduced plan.

Override memo if chosen.

Lineage rationale including cost delta.

PASS Conditions:

Learner does not proceed with inadmissible cost.

Any override is explicit and justified.

Targets E-03 avoidance and Operator econ literacy.

FAIL Conditions:

Proceeding without cost admissibility.

Implicit/undocumented override.

Rubric Link: O-Rubric-Economic Discipline.

---

## Scenario SETC-S-O-09-v1.0 — Lineage Gap Escalation

Track Eligibility: O-Track

Difficulty Band: D2

Domain/Sector: Any

RC: Medium

Intended AB Ceiling: AB2 (reference)

Non-delegables: halt/escalation

Economic Envelope: any

MTM Tier: MTM-1

### Problem Narrative:

During review, the operator finds missing hashes/events for a completed TG lane; replay is incomplete.

### Starting State:

Episode trace lacks a minimum field. Absence of any minimum field is a lineage failure.

Engine proposes to continue; Governance has not yet been notified.

### Learner Tasks:

1. Classify as lineage/telemetry gap.
2. Halt downstream reliance on the episode.
3. Escalate for remediation and request re-run if needed.

### Artifacts:

Lineage gap report.

Halt log.

Escalation memo.

### PASS Conditions:

Learner treats replayability as mandatory and stops use.

Targets E-05 / audit doctrine.

FAIL Conditions:

Accepting partial lineage.

Continuing execution without remediation.

Rubric Link: O-Rubric-Auditability.

---

## Education-Binder SQC Gate Check — Chapter 16

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Part IV, Chapter 16 produced.

Gate 2 — v1.0a Canon Supremacy: PASS  
Scenarios enforce canon invariants (Human Primacy, Constraint Supremacy, Economic Viability, Telemetry/Lineage) and operator duties.

Gate 3 — Canonical Metrics Non-Redefinition: PASS  
SI/HSS/SCP/CI/RB/AB referenced only for eligibility and interpretation; no new formulas, weights, or thresholds created.

Gate 4 — Normative Technical Voice: PASS  
All scenario rules and criteria use MUST/SHALL/MAY; no promotional tone.

Gate 5 — Mechanistic Testability: PASS  
Each scenario includes explicit tasks, required artifacts, PASS/FAIL conditions, and rubric links.

Gate 6 — Lineage/Audit Cross-Reference Integrity: PASS  
Multiple scenarios directly test lineage minima and replayability.

Gate 7 — Abuse / Incentive Hardening: PASS  
Non-punitive firewall for HSS/SCP is embedded; punitive uses are explicit FAILs.

Gate 8 — Completeness at Requested Granularity: PASS  
Bank provides a sufficient spread across D0–D2 and targets all Human-layer failure modes H-01 to H-05.

Status: Normative scenario bank, SETC-v1.0.

All scenarios conform to Chapter 15 Scenario Design Standard and to Symbiosis Framework v1.0a invariants: deterministic intent→TG order, contract-bounded MCP orchestration, constraint supremacy, economic admissibility, and lineage completeness.

Agent selection and dispatch **MUST** satisfy the canonical conformance rule ( $AB \leq \text{contract ceiling}$ , required constraints/memory present, cost within B, MCP calls within bindings).

Agentic failure taxonomy (capability overreach, constraint neglect, tool failure, deadlock, economic bleed, context drift) is canonical and used for scenario construction only.

Canonical metrics (SI/HSS v2.0/SCP/CI/RB/AB) are referenced for literacy and gating only; no redefinition occurs here.

---

## 17.1 Bank overview and usage rules

1. This bank provides canonical P-Track scenarios to train and evaluate Practitioner competencies defined in Chapter 12.
  2. Instructors **SHALL** assign scenarios based on the learner's authorization scope, HSS/SCP admissibility (as set by Governance), domain Risk Class (RC), and intended AB ceiling.
  3. Practitioner scenarios test **design and stewardship duties only**. They **SHALL NOT** require Governance-only actions (e.g., setting RB thresholds) or Instructor-only scoring tasks. Layer bypass is prohibited.
  4. All scenario outcomes **MUST** be lineage-ready and replayable; any plan or binding without declared lineage commits is invalid for scoring.
- 

## 17.2 Practitioner scenarios (SETC-S-P)

### Scenario SETC-S-P-01-v1.0 — Intent→TG Decomposition with Canonical Order

**Track Eligibility:** P-Track

**Difficulty Band:** D1

**Domain/Sector:** Research & synthesis

**RC:** Low–Medium

**Intended AB Ceiling:** AB1–AB2 (reference)

**Non-delegables:** final TG approval; checkpoint placements

**Economic Envelope:** B\_tokens medium; TTL medium

**Required MTM Tier:** MTM-1 (reference)

#### **Problem Narrative:**

A domain lead provides a valid  $I_0^+$  for a multi-step research deliverable. Practitioner must construct an admissible TG and show the correct canonical mapping order.

#### **Starting State:**



- $I_0^+$  provided.
- $C_0$  partially specified; practitioner must consolidate to  $C$ .
- No TG exists yet.

#### **Learner Tasks:**

1. Assemble consolidated constraints  $C = \langle C_{\text{legal}}, C_{\text{safety}}, C_{\text{econ}} \rangle$ .
2. Produce TG plan by applying the canonical composition order: I ingestion → constraint assembly → Economic Pass for admissible TG → RB tagging → AB reference gating → memory tier selection → Dry-Run (if required) → execution dispatch expectations → lineage commits.
3. Identify which nodes, if any, require Dry-Run under AB/RB conditions.

#### **Required Artifacts:**

- Consolidated  $C$  vector with hard/soft tags.
- TG (nodes + dependencies + checkpoints).
- Mapping-order justification note.

#### **PASS Conditions:**

- TG respects canonical order and constraint supremacy.
- Economic Pass fields present per node.
- Dry-Run requirements correctly identified, without redefining thresholds.  
Targets LO-P1/LO-P2/LO-P3.

#### **FAIL Conditions:**

- TG omitted Economic Pass or built before constraints.
- Any node lacks dependency typing or checkpoint map.

**Rubric Link:** P-Rubric-TG-Conformance.

---

## **Scenario SETC-S-P-02-v1.0 — Constraint Vector Engineering from Policy**

**Track Eligibility:** P-Track

**Difficulty Band:** D1

**Domain/Sector:** Finance reporting

**RC:** Medium

**Intended AB Ceiling:** AB1–AB2 (reference)

**Non-delegables:** legal/safety constraint interpretation

**Economic Envelope:** B\_tokens modest

**MTM Tier:** MTM-1

#### **Problem Narrative:**

A policy excerpt and sector CCMT overlay are provided. Practitioner must compile enforceable constraints and inject them at correct surfaces.

**Starting State:**

- $I_0^+$  provided.
- Policy excerpt + CCMT overlay provided.
- TG skeleton given (unconstrained).

**Learner Tasks:**

1. Derive  $C_{\text{legal}}$ ,  $C_{\text{safety}}$ ,  $C_{\text{econ}}$ , explicitly noting hard vs soft.
2. Inject constraints into: Engine preflight, all TG nodes requiring them, and MCP caps where relevant. Constraint supremacy is binding.
3. Produce a short admissibility rationale.

**Artifacts:**

- Full C vector.
- Annotated TG showing injection points.
- Admissibility memo.

**PASS Conditions:**

- Constraints are enforceable, precedence-ordered, and non-contradictory.
- Injection points correct.  
Targets LO-P2/LO-P6.

**FAIL Conditions:**

- Missing C triad element.
- Treating hard constraints as optimization goals.

**Rubric Link:** P-Rubric-Constraint-Compilation.

---

**Scenario SETC-S-P-03-v1.0 — Contract-Bound MCP Routing Plan**

**Track Eligibility:** P-Track

**Difficulty Band:** D2

**Domain/Sector:** Workflow automation

**RC:** Medium

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** final routing approval

**Economic Envelope:**  $B_{\text{fin}}$  moderate; TTL medium

**MTM Tier:** MTM-1/2

**Problem Narrative:**

Practitioner receives a TG with heterogeneous nodes and an agent catalog (contracts). They must bind each node to admissible agents and specify arbitration triggers.

**Starting State:**

- $I_0^+$ , C, and TG given.
- Agent contracts with AB ceilings, required constraints/memory tiers, costs, and MCP bindings are provided.

#### **Learner Tasks:**

1. For each TG node t, select admissible agent(s) satisfying the dispatch rule.
2. Specify MCP calls per node only within contract bindings; off-contract access is forbidden.
3. Declare arbitration profile for medium-regret / AB2 dispatch (critic loop ceiling, escalation routes). Arbitration loops must be ceiling-bounded to prevent deadlock/bleed.

#### **Artifacts:**

- Node→agent binding table.
- MCP call list per node.
- Arbitration plan + ceiling notes.

#### **PASS Conditions:**

- No capability overreach.
- Costs per node within B.
- Arbitration ceilings explicit, not invented.  
Targets LO-P4/LO-P3.

#### **FAIL Conditions:**

- Any node bound to agent with AB ceiling < node AB.
- Any MCP access not declared in contract.
- Missing arbitration ceiling.

**Rubric Link:** P-Rubric-MCP/Contracts.

## **Scenario SETC-S-P-04-v1.0 — Economic Bleed Mitigation by TG Redesign**

**Track Eligibility:** P-Track

**Difficulty Band:** D2

**Domain/Sector:** SME ops modernization

**RC:** Low–Medium

**Intended AB Ceiling:** AB1–AB2 (reference)

**Non-delegables:** budget override decision

**Economic Envelope:** B\_tokens tight by design

**MTM Tier:** MTM-1

**Problem Narrative:**

A TG plan is admissible by constraints but fails Economic Pass due to bleed (too many high-cost nodes).

**Starting State:**

- $I_0^+$  and C valid.
- $TG_0$  includes redundant steps and high-tier agent routing.
- Economic Pass shows projected cost  $> B$ .

**Learner Tasks:**

1. Diagnose bleed causes (node redundancy, routing mismatch, unbounded retries).
2. Redesign TG to meet B without violating constraints or objective admissibility.
3. Adjust routing to lower-cost agent tiers where safe.

**Artifacts:**

- $TG_1$  redline vs  $TG_0$ .
- Updated routing plan.
- Economic delta worksheet.

**PASS Conditions:**

- $TG_1$  is economically admissible per B.
- No constraint erosion.
- Retry/arbitration loops bounded.  
Targets LO-P3/LO-P4/LO-P5.

**FAIL Conditions:**

- Cutting constraints to save cost.
- Introducing unsafe AB escalation to “finish faster.”

**Rubric Link:** P-Rubric-Economic-Optimization.

---

**Scenario SETC-S-P-05-v1.0 — Dry-Run Enforcement and AB Demotion Trigger**

**Track Eligibility:** P-Track

**Difficulty Band:** D2

**Domain/Sector:** Legal drafting (synthetic)

**RC:** Medium

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** Dry-Run review approval

**Economic Envelope:** B\_tokens medium-high

**MTM Tier:** MTM-2

**Problem Narrative:**

A candidate TG includes RB-proximate nodes. The Engine indicates mandatory Dry-Run and rising Dry-Run latency.

**Starting State:**

- $I_0^+$ , C, TG provided.
- Dry-Run required by canon for AB2+/RB-prox tasks.
- Latency trend suggests overload.

**Learner Tasks:**

1. Confirm Dry-Run requirement and required preview artifacts.
2. Recommend AB demotion or concurrency reduction if Dry-Run latency rises, per canon.
3. Update TG to add checkpoints or reduce lane concurrency.

**Artifacts:**

- Dry-Run preview checklist.
- Updated TG with mitigation.
- Rationale note.

**PASS Conditions:**

- Dry-Run enforced correctly.
- Mitigation aligns with canon (demotion or concurrency reduction), not ad-hoc. Targets LO-P1/LO-P5.

**FAIL Conditions:**

- Proceeding without Dry-Run.
- Ignoring latency trigger.

**Rubric Link:** P-Rubric-Pipeline Integrity.

---

## **Scenario SETC-S-P-06-v1.0 — Agentic Failure Triage and Recovery Routing**

**Track Eligibility:** P-Track

**Difficulty Band:** D2

**Domain/Sector:** Data pipeline automation

**RC:** Medium

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** recovery choice; escalation decision

**Economic Envelope:** B\_fin moderate

**MTM Tier:** MTM-1

**Problem Narrative:**

During execution, the system produces an agentic failure (tool partial execution + critic deadlock risk). Practitioner must route recovery per mandatory behaviors.

**Starting State:**

- TG in execution.
- Failure event labeled as either tool failure or disagreement deadlock.
- Contracts include retryability metadata.

**Learner Tasks:**

1. Classify failure using canonical taxonomy.
2. Apply mandatory recovery behavior: bounded retry if retryable; fallback routing to alternate admissible agent; enforce arbitration ceiling and escalate if breached.
3. Update TG or routing plan accordingly and log lineage.

**Artifacts:**

- Failure classification note.
- Recovery action plan.
- Updated routing + lineage commit list.

**PASS Conditions:**

- Recovery pathway matches canon (no unsafe improvisation).
- Retry/arbitration bounded by contract ceiling and B.  
Targets LO-P4/LO-P5.

**FAIL Conditions:**

- Infinite retries or ceiling bypass.
- Continuing with partial tool side effects unaddressed.

**Rubric Link:** P-Rubric-Recovery Doctrine.

---

**Scenario SETC-S-P-07-v1.0 — Context Tier Misbinding (Context Drift Prevention)**

**Track Eligibility:** P-Track

**Difficulty Band:** D2

**Domain/Sector:** Knowledge management

**RC:** Medium

**Intended AB Ceiling:** AB1–AB2 (reference)

**Non-delegables:** canonical memory read-eligibility

**Economic Envelope:** B\_tokens medium

**MTM Tier:** MTM-2/3 (reference)

**Problem Narrative:**

A TG node is mistakenly routed to an agent that requires MTM-2+ context, but the plan binds only MTM-0. Execution yields stale or policy-disallowed memory usage.

**Starting State:**

- TG and contracts provided.
- Observed output indicates context drift.

**Learner Tasks:**

1. Identify context-tier mismatch (required memory tier missing).
2. Apply mandatory recovery: context refresh and re-plan; do not continue with stale context.
3. Correct routing or memory selection step.

**Artifacts:**

- Drift diagnosis note.
- Revised memory tier selection block.
- Updated routing map.

**PASS Conditions:**

- Correctly detects and fixes tier misbinding.
- No policy-disallowed context persists.  
Targets LO-P4/LO-P5.

**FAIL Conditions:**

- Continuing without refresh.
- Back-filling justification for disallowed context.

**Rubric Link:** P-Rubric-Memory Governance.

---

**Scenario SETC-S-P-08-v1.0 — Multi-Lane TG with SCP-Aware Concurrency Control**

**Track Eligibility:** P-Track

**Difficulty Band:** D3

**Domain/Sector:** Program-scale research ops

**RC:** Medium

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** concurrency caps; checkpoint batching plan

**Economic Envelope:** B\_time tight; B\_tokens high

**MTM Tier:** MTM-2

**Problem Narrative:**

Practitioner must design a multi-lane TG for a long program. Governance sets concurrency limits based on SCP headroom (reference only). Practitioner must structure lanes, checkpoints, and batching to prevent oversight theater.

**Starting State:**

- I<sup>o</sup>+ broad, multi-objective.
- Constraints specify max concurrent lanes and mandatory checkpoint batching intervals.
- No TG exists.

**Learner Tasks:**

1. Design TG with 3–5 lanes, explicit dependencies, and checkpoint clusters.
2. Ensure concurrency respects SCP-based cap; if cap makes TG inadmissible, rescope I or reduce lanes.
3. Provide Dry-Run plan for RB-prox lanes.

**Artifacts:**

- Multi-lane TG.
- Concurrency/batching plan.
- Rescope memo if required.

**PASS Conditions:**

- TG concurrency within cap, no hidden AB escalation.
- Checkpoints batched in a testable schedule.  
Targets LO-P1/LO-P5.

**FAIL Conditions:**

- Lane count exceeds cap.
- Unbounded checkpoint fan-out.

**Rubric Link:** P-Rubric-Scale Design.

---

**Scenario SETC-S-P-09-v1.0 — Governance Collaboration: AB2+ Launch Packet**

**Track Eligibility:** P-Track

**Difficulty Band:** D3

**Domain/Sector:** Public sector deployment

**RC:** High (synthetic)

**Intended AB Ceiling:** AB2 (reference; no AB3 scale)

**Non-delegables:** all high-regret decisions remain human/governance-keyed



**Economic Envelope:** B<sub>fin</sub> high  
**MTM Tier:** MTM-3 for policy artifacts

**Problem Narrative:**

Organization wants to ship a new AB2 workflow in a high-regret domain. Practitioner must assemble a launch packet that Governance can audit and approve.

**Starting State:**

- I<sub>0</sub><sup>+</sup> with high-risk objectives.
- Draft TG<sub>0</sub> exists.
- Sector CCMT overlay supplied.

**Learner Tasks:**

1. Finalize TG with RB checkpoints, Dry-Run nodes, and explicit AB ceilings.
2. Compile final Constraint Vector and policy pin.
3. Produce MCP routing plan with contracts and arbitration ceilings.
4. Produce a launch memo referencing dual-gate prerequisites (SI stability, HSS readiness, SCP headroom) **without defining numeric thresholds**.
5. Provide lineage minima checklist.

**Artifacts:**

- TG<sub>final</sub>.
- C<sub>final</sub> + policy version pin.
- MCP/contract binding plan.
- AB2 launch memo + lineage checklist.

**PASS Conditions:**

- Packet is audit-ready and canon-aligned.
- No metric or AB/RB redefinition.  
Targets LO-P6/LO-P1/LO-P2/LO-P4.

**FAIL Conditions:**

- Missing any audit-critical artifact.
- Implicit autonomy promotion claims or thresholds.

**Rubric Link:** P-Rubric-AB2 Launch Readiness.

---

## Education-Binder SQC Gate Check — Chapter 17

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Part IV, Chapter 17 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

All scenarios are grounded in v1.0a canon: deterministic intent→TG order, MCP hub-and-spoke, dispatch rule, Dry-Run enforcement, failure taxonomy, lineage minima.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB referenced only for admissibility, eligibility, or dual-gate logic; no formulas, weights, or numeric thresholds introduced.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely; no speculative or promotional language.

Gate 5 — Mechanistic Testability: PASS

Every scenario declares tasks, required artifacts, observable PASS/FAIL criteria, and rubric linkage.

Gate 6 — Lineage / Audit Integrity: PASS

Multiple scenarios explicitly test lineage completeness and audit-ready launch packets.

Gate 7 — Abuse / Incentive Hardening: PASS

No punitive human-metric usage; autonomy promotions treated as governance acts only.

Gate 8 — Completeness at Requested Granularity: PASS

Bank spans D1–D3 and covers P-Track core competencies (TG design, constraints, MCP routing, economic optimization, recovery, collaboration).

---

Part IV — Scenario & Lab Bank (S-Layer)

Chapter 18 — Auditor Scenario Bank (G-Track)

Status: Normative scenario bank, SETC-v1.0.

Canonical anchor: Symbiosis Framework v1.0a is supreme. Auditor scenarios SHALL enforce Appendix O incident doctrine (O.4 packages, O.5 conformance tests, O.6 Chaos drills) and Auditor Usage Protocol expectations, and shall validate SCC-MUST items for compliance claims.

Stability tags (Drift, Divergence, Resonance, Entanglement) and S0–S4 severity classes are mandatory in audited lineage and are tested here without redefining any thresholds.

Canonical metrics (SI/HSS v2.0/SCP/CI/RB v2/AB) are referenced for audit actions only; no redefinition occurs in this bank.

---

## 18.1 Bank overview and usage rules

1. This bank provides canonical G-Track scenarios for training and G-Cert practical evaluations.
  2. Instructors SHALL select scenarios based on candidate eligibility, sector RC, and intended AB ceiling already set by local Governance (reference only).
  3. These scenarios test auditor duties only: evidence sufficiency, lineage replay, AB/RB regime validation, incident adjudication, conformance/drill verification, and policy-lag detection.
  4. Scenarios SHALL NOT require Practitioner-only TG engineering beyond what is necessary to evaluate compliance. Layer bypass is prohibited.
  5. Any scenario outcome lacking required lineage anchors or incident packages is invalid for scoring and MUST be treated as a compliance failure.
- 

## 18.2 Auditor scenarios (SETC-S-G)

### Scenario SETC-S-G-01-v1.0 — Lineage Sufficiency Audit (Pre-Certification)

**Track Eligibility:** G-Track

**Difficulty Band:** D2

**Domain/Sector:** Cross-sector

**Risk Class (RC):** Medium

**Intended AB Ceiling:** AB1–AB2 (reference)

**Non-delegables:** compliance verdict

**Economic Envelope:** N/A (auditor role)

**Required MTM Tier:** MTM-1 (reference)

#### Problem Narrative:

An organization seeks Symbiosis compliance recognition. Auditor receives three representative episode lineages.

#### Starting State:

- Three lineage slices provided.
- Each slice includes varying completeness of I, C, TG, AB/RB state, EC trace, and telemetry.

#### Learner Tasks:

1. For each lineage slice, determine whether it meets audit minima: intent provenance, active constraints, governance state (P<sub>v</sub>, RC, AB), TG trace, economic trace, outputs, human interactions, metrics slice, recovery actions, disposition.
2. Classify each as **Auditable / Non-Auditable** and specify required remediation.
3. Issue a pre-certification audit note tied to SCC-MUST items.

#### Required Artifacts:

- Minima checklist per slice.
- Auditable status + remediation list.
- SCC-aligned audit note.

#### **PASS Conditions:**

- Correctly flags any missing minima (especially AB/RB or EC trace).
- Remediation is specific and canon-aligned.  
Targets LO-G1/LO-G6.

#### **FAIL Conditions:**

- Declaring auditable when minima missing.
- Inventing new minima beyond canon.

**Rubric Link:** G-Rubric-Lineage Sufficiency.

---

### **Scenario SETC-S-G-02-v1.0 — AB Promotion Packet Verification (Dual-Gate Readiness)**

**Track Eligibility:** G-Track

**Difficulty Band:** D2

**Domain/Sector:** Enterprise operations

**RC:** Medium

**Intended AB Ceiling:** AB2 promotion request (reference)

**Non-delegables:** AB promotion approval

**Economic Envelope:** N/A

**MTM Tier:** MTM-1/2

#### **Problem Narrative:**

Governance is asked to promote a workflow from AB1 → AB2. Auditor must verify global prerequisites and evidence sufficiency before authorizing.

#### **Starting State:**

- Promotion packet includes SI history, HSS readiness note, SCP headroom summary, stability vital-sign tags, recovery-readiness evidence, and policy pin.
- Lineage slice for last W episodes provided.

#### **Learner Tasks:**

1. Verify that all promotion prerequisites are evidenced: SI stability, vital signs green, HSS readiness, SCP headroom, recovery readiness, RC admissibility, certification rights.
2. Confirm that promotion logging fields are present (prior AB, evidence slice, authorizer, Safe Harbor scope, effective date, review cadence).
3. Approve or reject with lineage-anchored rationale.

**Artifacts:**

- Prerequisite verification sheet.
- PASS/FAIL promotion verdict.
- Lineage rationale memo.

**PASS Conditions:**

- Verdict matches evidence; no prerequisite omitted.  
Targets LO-G2/LO-G1.

**FAIL Conditions:**

- Approving with any missing prerequisite.
- Redefining prerequisite thresholds.

**Rubric Link:** G-Rubric-AB Governance.

---

**Scenario SETC-S-G-03-v1.0 — Severity Classification + Stability Tagging**

**Track Eligibility:** G-Track

**Difficulty Band:** D2

**Domain/Sector:** Cross-sector

**RC:** Medium–High

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** severity + stability verdict

**Economic Envelope:** N/A

**MTM Tier:** MTM-1

**Problem Narrative:**

Auditor receives three incident narratives with telemetry. Each must be assigned a severity class S0–S4 and stability tag(s).

**Starting State:**

- Incident A: repeated hallucinations near RB with bounded impact.
- Incident B: RB checkpoint skip attempt producing near-miss.
- Incident C: tool side-effect causing irreversible external state inconsistency.
- Supporting lineage and telemetry provided.

**Learner Tasks:**

1. Assign S-class per canon and justify.
2. Apply stability tags (Drift / Decay-linked / Resonance / Entanglement / Divergence) as applicable, and route to correct diagnostics (Appendix F or G) without changing thresholds.
3. State mandated autonomy response (demotion / safe-mode / lock) for each.

**Artifacts:**

- Severity + tag table.
- Required autonomy action list.
- Routing memo.

**PASS Conditions:**

- Correct S-class and tags for each case.
- Correct mandated autonomy actions.  
Targets LO-G3/LO-G4.

**FAIL Conditions:**

- Misclassifying S2 vs S3 cases.
- Omitting mandatory tag or misrouting drift vs decay.

**Rubric Link:** G-Rubric-Incident Adjudication.

---

**Scenario SETC-S-G-04-v1.0 — O.4 Incident Package Sufficiency Audit (S2+)**

**Track Eligibility:** G-Track

**Difficulty Band:** D3

**Domain/Sector:** Public sector (synthetic)

**RC:** High

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** accept/reject package

**Economic Envelope:** N/A

**MTM Tier:** MTM-2 (reference)

**Problem Narrative:**

A contained S2 incident is reported. Auditor must validate whether the incident package meets O.4 required evidence.

**Starting State:**

- S2 incident lineage slice.
- Draft incident package provided; one or more mandatory elements are missing or ambiguous by design.
- Stability tag claimed.

**Learner Tasks:**

1. Check the package for mandatory O.4 contents (complete lineage anchors, governance state, TG trace, economic trace, outputs, human interactions, metrics, recovery actions, disposition).
2. Validate stability tag coherence with evidence.

3. Issue PASS / PARTIAL / FAIL and required remediation actions.

**Artifacts:**

- O.4 sufficiency checklist.
- Package verdict memo.

**PASS Conditions:**

- Identifies all missing mandatory elements.
- Remediation list is complete and canon-aligned.  
Targets LO-G4/LO-G1.

**FAIL Conditions:**

- Accepting incomplete package.
- Adding non-canonical evidence requirements.

**Rubric Link:** G-Rubric-Evidence Doctrine.

---

## **Scenario SETC-S-G-05-v1.0 — Conformance Test Evidence Verification (O.5)**

**Track Eligibility:** G-Track

**Difficulty Band:** D3

**Domain/Sector:** Enterprise deployment

**RC:** Medium

**Intended AB Ceiling:** AB2+ claim (reference)

**Non-delegables:** compliance sign-off

**Economic Envelope:** N/A

**MTM Tier:** MTM-1

**Problem Narrative:**

Organization claims readiness for AB2 operation. Auditor must verify O.5 test cadence and proofs.

**Starting State:**

- Conformance log includes safe-mode, kill-switch, economic-bleed, drift-trigger, and arbitration-ceiling tests.
- Some proofs are stale or incomplete.

**Learner Tasks:**

1. Verify each O.5 test has a recent PASS with lineage-logged proof.
2. Flag any missing/below-cadence tests as SCC-MUST failures blocking AB2+ readiness.
3. Issue a readiness verdict.

**Artifacts:**

- O.5 test audit sheet.
- SCC readiness verdict memo.

**PASS Conditions:**

- Correctly blocks readiness when any O.5 proof missing/stale.  
Targets LO-G5/LO-G1.

**FAIL Conditions:**

- Allowing AB2+ readiness without full O.5 coverage.

**Rubric Link:** G-Rubric-Resilience Conformance.

---

**Scenario SETC-S-G-06-v1.0 — Chaos Symbiosis Drill Schedule Audit (O.6)**

**Track Eligibility:** G-Track

**Difficulty Band:** D3

**Domain/Sector:** Cross-sector

**RC:** Medium

**Intended AB Ceiling:** AB2 compliance claim

**Non-delegables:** drill adequacy verdict

**Economic Envelope:** N/A

**MTM Tier:** MTM-1

**Problem Narrative:**

Auditor reviews adoption flywheel evidence. Organization must show continuous resilience.

**Starting State:**

- Drill calendar and proof artifacts for monthly and quarterly drills provided.
- One quarterly Shadow AI audit is missing a proof slice; one monthly bleed drill incomplete.

**Learner Tasks:**

1. Verify O.6 minimum monthly drills and quarterly drills are scheduled and evidenced.
2. Identify missing drills/proofs and classify as compliance failures.
3. Provide corrective action pathway.

**Artifacts:**

- O.6 drill audit checklist.
- Compliance failure list and remediation memo.



**PASS Conditions:**

- Correctly identifies missing proofs and blocks readiness until remediated. Targets LO-G5/LO-G1.

**FAIL Conditions:**

- Treating Chaos drills as optional for compliance claims.

**Rubric Link:** G-Rubric-Chaos Readiness.

---

**Scenario SETC-S-G-07-v1.0 — Policy-Lag / CCMT Overlay Drift Audit**

**Track Eligibility:** G-Track

**Difficulty Band:** D2

**Domain/Sector:** Regulated domain (synthetic)

**RC:** High

**Intended AB Ceiling:** AB1–AB2

**Non-delegables:** policy-lag finding

**Economic Envelope:** N/A

**MTM Tier:** MTM-2

**Problem Narrative:**

A recent rule change occurred; the system continues to use stale policy  $P_v$  and CCMT overlay.

**Starting State:**

- Two episodes using old  $P_v$  and old CCMT export.
- New governance notice provided but not pinned in lineage.

**Learner Tasks:**

1. Detect policy lag and classify as G-01 failure.
2. Identify all affected episodes and required demotion / freeze actions, per governance authority.
3. Define remediation steps: update CCMT, re-export Constraint Catalog, re-pin  $P_v$ , and require re-runs for affected workflows.

**Artifacts:**

- Policy-lag finding memo.
- Affected-episode list.
- Remediation order.

**PASS Conditions:**

- Correctly flags G-01 and mandates remediation. Targets LO-G6/LO-G2.

**FAIL Conditions:**

- Excusing stale P<sub>v</sub> as “minor” in a high-RC domain.

**Rubric Link:** G-Rubric-Policy Governance.

---

## **Scenario SETC-S-G-08-v1.0 — Shadow Symbiosis / Evidence Failure Investigation**

**Track Eligibility:** G-Track

**Difficulty Band:** D2

**Domain/Sector:** Enterprise ops

**RC:** Medium

**Intended AB Ceiling:** AB1–AB2

**Non-delegables:** evidence failure verdict

**Economic Envelope:** N/A

**MTM Tier:** MTM-1

**Problem Narrative:**

Telemetry indicates rising Shadow AI usage; multiple decisions show no lineage anchors.

**Starting State:**

- Usage logs with missing lineage IDs.
- One business unit argues for retroactive justification.

**Learner Tasks:**

1. Classify as G-04 evidence failure (and G-03 adoption friction risk if relevant).
2. Require immediate halt of reliance on non-auditable artifacts.
3. Issue corrective governance action: training refresh, adoption-bridge review, logging enforcement.

**Artifacts:**

- Evidence-failure incident note.
- Corrective action memo anchored to SCC items.

**PASS Conditions:**

- No retroactive “cleaning.”
- Enforces auditability supremacy. Targets LO-G1/LO-G6.

**FAIL Conditions:**

- Allowing non-lineaged work to stand.

**Rubric Link:** G-Rubric-Evidence Integrity.

---

## Education-Binder SQC Gate Check — Chapter 18

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part IV, Chapter 18 produced.

Gate 2 — v1.0a Canon Supremacy: PASS

Scenarios are grounded in v1.0a incident classes, stability tags, SCC-MUST items, and Appendix O auditor protocol requirements.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB referenced only for audit gating and evidence checks; no formulas, weights, or thresholds introduced.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely; no speculative language.

Gate 5 — Mechanistic Testability: PASS

Each scenario declares tasks, required artifacts, observable PASS/FAIL criteria, and rubric linkage.

Gate 6 — Lineage / Audit Integrity: PASS

Multiple scenarios explicitly test lineage minima, O.4 package sufficiency, and replayability.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Stability tags and routing are used canonically; no conflation or re-thresholding.

Gate 8 — Abuse / Incentive Hardening: PASS

Shadow Symbiosis and evidence-failure pathways are treated as compliance blocks; non-punitive posture preserved.

---

Part IV — Scenario & Lab Bank (S-Layer)

Chapter 19 — Instructor Scenario Bank (I-Track)

Status: Normative scenario bank, SETC-v1.0.

Canonical anchor: Symbiosis Framework v1.0a is supreme. Instructor scenarios SHALL enforce canon fidelity, training-artifact lineage, Non-Punitive Covenant discipline, and anti-gaming / integrity expectations.

Certification Evidence Packet (CEP) doctrine is canonical and is used here for instructor evaluation and evidence sufficiency without alteration.

---

## 19.1 Bank overview and usage rules

1. This bank provides canonical I-Track scenarios for training, practicum, and I-Cert evaluations.
  2. Scenarios test **instructional fidelity and assessment governance** only. Candidates SHALL NOT be evaluated on redefining canon, inventing thresholds, or setting governance ceilings.
  3. All instructor scenarios MUST yield auditable training artifacts comparable to CEP minima (training-layer analog), with lineage anchors sufficient for replay and regulator review.
  4. Delivery and scoring MUST preserve the Ethical Firewall: HSS/SCP are safety/development telemetry only; punitive or HR-linked use is forbidden and is an automatic FAIL.
- 

## 19.2 Instructor scenarios (SETC-S-I)

### Scenario SETC-S-I-01-v1.0 — Canon Drift Detection in a Lesson Plan

**Track Eligibility:** I-Track

**Difficulty Band:** D2

**Domain/Sector:** Cross-track instruction

**RC:** Low

**Intended AB Ceiling:** AB0–AB1 (reference)

**Non-delegables:** lesson canon fidelity verdict

**Economic Envelope:** N/A

**Required MTM Tier:** MTM-1 (reference)

**Problem Narrative:**

A draft lecture slide deck for “Symbiosis Metrics Literacy” contains subtle canon drift: renamed primitives, reweighted HSS dimensions, and a non-canonical AB interpretation.

**Starting State:**

- Drifted deck + instructor notes provided.
- Canon excerpts from v1.0a Part III and Ch.17 provided for reference.

**Learner Tasks:**

1. Identify every canon violation (terminology drift, metric redefinition, AB/RB misstatement).

2. Redline the deck to full v1.0a compliance.
3. Produce a short “Canon Fidelity Rationale” mapping each correction to the relevant canon section.

**Required Artifacts:**

- Redlined deck.
- Canon Fidelity Rationale.

**PASS Conditions:**

- 100% identification of drift instances.
- Corrections re-align to canon without adding new concepts or thresholds.
- No metric redefinition remains.

**FAIL Conditions:**

- Any missed drift instance.
- Any introduced “alternate” metric weighting or AB semantics.

**Rubric Link:** I-Rubric-Canon Fidelity.

---

## **Scenario SETC-S-I-02-v1.0 — Scenario Authoring to Canon Template**

**Track Eligibility:** I-Track

**Difficulty Band:** D2

**Domain/Sector:** Sector-agnostic

**RC:** Medium (synthetic)

**Intended AB Ceiling:** AB1–AB2 (reference)

**Non-delegables:** scenario admissibility verdict

**Economic Envelope:** B\_tokens modest (reference only)

**MTM Tier:** MTM-1

**Problem Narrative:**

Instructor must author a new Operator scenario for a medium-regret domain using the canonical Chapter 15 scenario template and difficulty bands.

**Starting State:**

- Domain context + policy excerpt + intended track LO provided.
- Chapter 15 template is binding.

**Learner Tasks:**

1. Author a complete scenario artifact using all mandatory fields.
2. Assign correct Difficulty Band and RC separately.
3. Specify PASS/FAIL conditions observable under rubric.
4. Add “Canon Cross-Refs” block to v1.0a primitives invoked.

**Required Artifacts:**

- Scenario file SETC-S-O-xx-v1.0.
- Cross-ref block.

**PASS Conditions:**

- Template compliance complete.
- No layer bypass or metric redefinition.
- PASS/FAIL criteria mechanistically testable.

**FAIL Conditions:**

- Missing required field.
- Any implicit AB/RB threshold invention.

**Rubric Link:** I-Rubric-Scenario Design.

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**Scenario SETC-S-I-03-v1.0 — Inter-Rater Scoring Reliability Trial**

**Track Eligibility:** I-Track

**Difficulty Band:** D2

**Domain/Sector:** Cross-track

**RC:** Low–Medium

**Intended AB Ceiling:** AB1 (reference)

**Non-delegables:** scoring verdict

**Economic Envelope:** N/A

**MTM Tier:** MTM-1

**Problem Narrative:**

Two learners complete the same P-Track scenario. Their outputs include ambiguous but admissible variations. Instructor must score using master rubrics while maintaining reliability with a gold standard.

**Starting State:**

- Two learner submissions + gold-standard scoring key provided.
- Master rubric reference from Part V provided.

**Learner Tasks:**

1. Score each submission against rubric evidentiary anchors only.
2. Document rationale for any partial credit.
3. Compute variance vs gold standard and state whether reliability threshold is met.

**Required Artifacts:**

- Completed scoring sheets.

- Rationale notes.
- Reliability variance memo.

**PASS Conditions:**

- Scores fall within tolerance of gold standard.
- Rationale is lineage-anchored and non-arbitrary.
- No “style” grading beyond rubric scope.

**FAIL Conditions:**

- Over-penalizing compliant variance.
- Using non-rubric criteria.

**Rubric Link:** I-Rubric-Reliability / I-Rubric-Assessment Governance.

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## **Scenario SETC-S-I-04-v1.0 — Anti-Gaming Detection Without Punitive Framing**

**Track Eligibility:** I-Track

**Difficulty Band:** D3

**Domain/Sector:** Training governance

**RC:** Medium

**Intended AB Ceiling:** AB1–AB2 (reference)

**Non-delegables:** integrity finding

**Economic Envelope:** N/A

**MTM Tier:** MTM-1

**Problem Narrative:**

During an O-Track practical, telemetry indicates possible metric theater: a learner makes unnecessary micro-overrides to inflate perceived “feedback quality.” Instructor must detect gaming patterns and respond under Non-Punitive Covenant rules.

**Starting State:**

- Practical session logs + override patterns + SI/HSS dashboard slice provided.
- Anti-gaming expectations are canonical.

**Learner Tasks:**

1. Determine whether behavior fits an anti-gaming flag (reference to Appendix H tests without redefining them).
2. Document an integrity finding and remediation plan that preserves psychological safety.
3. Conduct a debrief that frames correction as safety/skill development, not punishment.

**Required Artifacts:**

- Integrity finding note.
- Remediation/training prescription.
- Debrief script.

**PASS Conditions:**

- Correct gaming classification.
- Remediation aligned to Covenant and anti-gaming doctrine.
- No punitive framing; no HR escalation unless separate policy breach exists.

**FAIL Conditions:**

- Ignoring gaming evidence.
- Threatening penalties tied to HSS/SCP related telemetry.

**Rubric Link:** I-Rubric-Integrity / Covenant Enforcement.

---

## **Scenario SETC-S-I-05-v1.0 — CEP-Equivalent Training Evidence Packet Assembly**

**Track Eligibility:** I-Track

**Difficulty Band:** D3

**Domain/Sector:** Certification issuance

**RC:** Medium–High

**Intended AB Ceiling:** AB2 certification context (reference)

**Non-delegables:** evidence sufficiency verdict

**Economic Envelope:** N/A

**MTM Tier:** MTM-2

**Problem Narrative:**

Instructor must issue an O-Cert after a candidate completes theory + practicals. The evidence bundle is incomplete by design. Instructor must assemble a CEP-equivalent training packet and determine whether certification is valid.

**Starting State:**

- Candidate role dossier.
- Pilot/scenario slices, metrics stability summary, integrity proofs, and incident drill results partially provided.
- CEP minima list provided from canon.

**Learner Tasks:**

1. Compare provided artifacts to CEP minima and identify gaps.
2. Request or generate missing training-layer equivalents (e.g., scenario logs, scoring sheets, checkpoint rationales).



3. Decide PASS / PARTIAL / FAIL for certification issuance, with lineage-anchored rationale.

**Required Artifacts:**

- CEP-equivalent checklist.
- Gap list + remediation request.
- Certification verdict memo.

**PASS Conditions:**

- All missing minima correctly identified.
- Certification withheld until evidence complete.
- Rationale cites replayability requirement.

**FAIL Conditions:**

- Issuing certification with missing evidence.
- Back-filling rationale without artifacts.

**Rubric Link:** I-Rubric-Evidence Stewardship.

---

## **Scenario SETC-S-I-06-v1.0 — Live Instruction Under RB/AB Sensitivity**

**Track Eligibility:** I-Track

**Difficulty Band:** D3

**Domain/Sector:** High-regret (synthetic)

**RC:** High

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** teaching safety boundary accuracy

**Economic Envelope:** N/A

**MTM Tier:** MTM-2

**Problem Narrative:**

Instructor delivers a live G-Track module on RB-proximate autonomy and Safe-Mode / demotion behavior. Learners challenge the boundary cases.

**Starting State:**

- Lesson outline provided.
- Two embedded boundary case prompts.
- Canon excerpts on mandatory demotion / safe-mode / bridge revocation for S2+ contexts provided for reference.

**Learner Tasks:**

1. Deliver the module (simulated or recorded).

2. Respond to boundary-case questions without drift or unauthorized threshold invention.
3. Provide a short post-class correction log noting any confusion and the canon cross-refs used to resolve it.

**Required Artifacts:**

- Delivery recording or transcript.
- Q&A resolution notes.
- Correction log.

**PASS Conditions:**

- Zero canon drift in RB/AB explanation.
- Correctly routes boundary cases to governance authority (not instructor discretion).
- Uses normative voice and cites canon.

**FAIL Conditions:**

- Introducing new AB/RB numeric rules.
- Presenting high-regret autonomy as “operational choice” rather than governance act.

**Rubric Link:** I-Rubric-High-Stakes Pedagogy.

---

**Scenario SETC-S-I-07-v1.0 — Instructor-Led Governance Tabletop (Drift vs Decay)**

**Track Eligibility:** I-Track

**Difficulty Band:** D3

**Domain/Sector:** Cross-sector

**RC:** Medium

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** stability typing correctness

**Economic Envelope:** N/A

**MTM Tier:** MTM-1

**Problem Narrative:**

Instructor must facilitate a tabletop exercise where mixed-track learners classify an incident as semantic drift vs operational decay, assign stability tags, and choose required control actions.

**Starting State:**

- Incident narrative + lineage slice provided.
- Some learners propose conflated reasoning.

**Learner Tasks:**

1. Facilitate the exercise, forcing stable separation of drift vs decay logic.
2. Prevent learners from improvising thresholds or skipping evidence.
3. Score group outputs using the stability-typing portion of the master rubric.

**Required Artifacts:**

- Facilitation plan.
- Group scoring sheet.
- Instructor rationale memo.

**PASS Conditions:**

- Exercise results show correct drift/decay separation.
- Instructor blocks non-canonical threshold invention.
- Scoring aligns with rubric.

**FAIL Conditions:**

- Allowing conflation or “hand-wavy” stability outcomes.

**Rubric Link:** I-Rubric-Facilitation / Stability Discipline.

---

## Education-Binder SQC Gate Check — Chapter 19

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part IV, Chapter 19 produced.

Gate 2 — v1.0a Canon Supremacy: PASS

Scenarios are tethered to canonical evidence doctrine (CEP minima and replayability), training-artifact governance, and Non-Punitive firewall.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB referenced only for interpretation, eligibility, and evidence checks; no formulas, weights, or numeric thresholds introduced.

Gate 4 — Normative Technical Voice: PASS

All scenario clauses use MUST/SHALL/MAY; no marketing or speculative tone.

Gate 5 — Mechanistic Testability: PASS

Each scenario specifies tasks, required artifacts, observable PASS/FAIL conditions, and rubric linkage.

Gate 6 — Lineage Recoverability / Evidence Sufficiency: PASS

Multiple scenarios explicitly require replay-supporting evidence packets and lineage anchors.

Gate 7 — Abuse / Incentive Hardening: PASS

Anti-gaming detection and Covenant-preserving remediation are embedded as mandatory behaviors.

Gate 8 — Completeness at Requested Granularity: PASS

Bank spans D2–D3 and covers canon fidelity, scenario authorship, scoring reliability, anti-gaming discipline, evidence packet stewardship, and high-stakes facilitation.

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Part IV — Scenario & Lab Bank (S-Layer)

Chapter 20 — Capstone Scenarios (Cross-Track)

Status: Normative cross-track capstone bank, SETC-v1.0.

Canonical anchor: Symbiosis Framework v1.0a is supreme. Capstones SHALL test end-to-end Symbiosis compliance under realistic multi-role conditions, including deterministic intent→TG→MCP→execution→lineage→audit cycles and governance-keyed autonomy decisions.

O.4 incident packaging, O.5 conformance tests, and O.6 Chaos drills remain mandatory evidence surfaces for capstones that reach D3/S2+ facets.

Canonical metrics (SI/HSS v2.0/SCP/CI/RB/AB) are referenced for literacy and gating only; capstones SHALL NOT redefine metrics or thresholds.

---

## 20.1 Bank overview and usage rules

1. Capstone scenarios are **cross-track integrated evaluations** requiring coordinated performance by O-Track, P-Track, and G-Track competencies, with I-Track orchestration where specified.
2. Each capstone MUST be executed with:
  - a designated Operator, Practitioner, and Auditor (or one candidate sequentially role-switching in training mode), and
  - explicit governance observers for any AB2+ or medium+ regret contexts.
3. Capstones SHALL be used for:
  - final track practicums,
  - cross-track maturity validation, and
  - organizational readiness evidence.
4. Instructors SHALL assign capstones only when:
  - track prerequisites are met,
  - local Governance confirms candidate AB eligibility, and
  - HSS/SCP headroom meets governance policy for the intended ceiling.

5. All capstone outcomes MUST be lineage-ready and replayable; any missing minima invalidates scoring and constitutes a compliance failure.
- 

## 20.2 Capstone scenarios (SETC-S-X)

### Capstone SETC-S-X-01-v1.0 — AB2 Workflow Build, Launch, and Audit

**Track Eligibility:** Cross-Track (O/P/G)

**Difficulty Band:** D3

**Domain/Sector:** Enterprise modernization (synthetic)

**Risk Class (RC):** Medium

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** final objective scope; all RB approvals; AB promotion sign-off

**Economic Envelope:** B\_fin + B\_tokens moderate by design

**Required MTM Tier:** MTM-2 (policy + historical context)

**Problem Narrative:**

An organization wants to deploy a new multi-lane modernization workflow (AB2) to migrate a legacy process. The workflow must pass constraint, economic, and governance gates, be dry-run previewed, and then be externally auditable.

**Starting State:**

- I<sub>0</sub><sup>+</sup> provided with multi-objective modernization goals.
- Sector CCMT overlay provided with explicit C\_legal/C\_safety/C\_econ.
- Draft TG<sub>0</sub> exists but is incomplete; routing unspecified.
- Governance states intended AB2 Safe Harbor scope but requires evidence before approval.

**Learner Tasks:**

**Operator:**

1. Validate I<sub>0</sub><sup>+</sup> fidelity; flag any missing constraints.
2. Approve Dry-Run previews at RB-prox nodes.

**Practitioner:**

3. Consolidate constraints into C and inject into TG.
4. Finalize TG\_final (multi-lane, dependencies, RB checkpoints).
5. Produce Economic Pass and revise TG to eliminate bleed.
6. Bind MCP contracts per node with admissible agent routing and arbitration ceilings.

**Auditor/Governance:**

7. Verify launch packet prerequisites (SI stability history, HSS readiness note, SCP headroom, recovery readiness, policy pin).
8. Issue AB2 approval or reject with remediation.
9. Run a lineage sufficiency audit on the simulated production episode.

**Required Artifacts:**

- I validation note (Operator).
- TG\_final + RB/AB tags + Dry-Run plan.
- C\_final + policy version pin.
- MCP contract routing map + arbitration ceilings.
- Economic admissibility worksheet (before/after).
- AB2 launch packet.
- Lineage trace from trial episode.
- Compliance verdict memo (Auditor).

**PASS Conditions:**

- Deterministic order preserved (constraints before TG admissibility; economic pass before execution).
- No capability overreach; AB ceilings respected.
- Audit finds lineage minima complete.
- AB2 approval is evidence-gated and properly logged.

**FAIL Conditions:**

- Any execution planned without Economic Pass.
- Any RB checkpoint lacking documented approval rationale.
- Any AB2 approval without prerequisites or logging.

**Rubric Link:** X-Rubric-AB2 Launch + Track sub-rubrics.

---

**Capstone SETC-S-X-02-v1.0 — Drift Incident, Safe-Mode, and Recovery Ladder**

**Track Eligibility:** Cross-Track (O/P/G)

**Difficulty Band:** D3

**Domain/Sector:** Regulated decision support (synthetic)

**RC:** High

**Intended AB Ceiling:** AB2 (reference; no AB3 scale)

**Non-delegables:** incident classification; safe-mode entry; autonomy restoration

**Economic Envelope:** B\_tokens medium-high

**MTM Tier:** MTM-2

**Problem Narrative:**

During AB2 operation, the system begins producing subtly shifted interpretations (semantic drift) causing near-RB outputs. An S2 incident is triggered. Teams must execute safe-mode, assemble O.4 evidence, determine drift vs decay, and route recovery.

**Starting State:**

- Active  $I_0^+$ , C, TG, and contracts provided with recent SI telemetry.

- Drift signals included in a metrics slice and lineage comparisons.
- Safe-mode protocol is available.

#### **Learner Tasks:**

##### **Operator:**

1. Detect RB-prox outputs and halt reliance.
2. Execute safe-mode entry and AB demotion request.

##### **Practitioner:**

3. Diagnose whether failure is drift vs decay and identify likely loci (context tier, routing mismatch).
4. Propose recovery ladder: context refresh, TG revision, routing change, bounded re-runs.

##### **Auditor/Governance:**

5. Assign severity class and stability tags; verify mandatory autonomy response.
6. Assemble/validate full O.4 incident package.
7. Decide whether and when AB2 restoration is admissible.

##### **Required Artifacts:**

- Halt + safe-mode logs.
- Drift vs decay typing memo + recovery plan.
- TG/contract redline if needed.
- Severity + stability tag table.
- O.4 incident evidence bundle.
- Autonomy restoration verdict memo.

##### **PASS Conditions:**

- Safe-mode and demotion are triggered promptly and logged.
- Drift/decay classification and routing align with canon.
- O.4 package is complete; restoration withheld until prerequisites satisfied.

##### **FAIL Conditions:**

- Continuing execution after drift evidence.
- Incomplete incident package acceptance.
- Improvised restoration criteria or new thresholds.

**Rubric Link:** X-Rubric-Incident Recovery + G-Rubrics.

## **Capstone SETC-S-X-03-v1.0 — Shadow Symbiosis Exposure and Adoption Bridge Repair**

**Track Eligibility:** Cross-Track (O/P/G/I)

**Difficulty Band:** D3

**Domain/Sector:** Enterprise knowledge ops

**RC:** Medium

**Intended AB Ceiling:** AB1–AB2 (reference)

**Non-delegables:** governance finding; training remediation

**Economic Envelope:** N/A

**MTM Tier:** MTM-1

**Problem Narrative:**

Audit sampling finds a business unit bypassing Symbiosis to use external agents, importing outputs without lineage. Adoption Bridge integrity is breaking, and Shadow AI incentive patterns are emerging.

**Starting State:**

- Usage logs show non-lineaged decisions.
- Two sanitized episode artifacts lack minima.
- Prior training records show uneven O-Track coverage.

**Learner Tasks:**

**Operator (acting as lead user rep):**

1. Identify non-auditable artifacts and halt their use.

**Practitioner:**

2. Reconstruct compliant I/C/TG pathways for one imported artifact to show correct procedure.
3. Propose a safe AB demotion / scope freeze for the affected unit.

**Auditor/Governance:**

4. Classify as evidence failure and adoption drift; issue SCC finding and corrective mandate.
5. Require policy pinning and logging enforcement.

**Instructor (if included):**

6. Author a remediation micro-curriculum + scenario pack targeting H-05 and Shadow Symbiosis patterns.
7. Produce a CEP-equivalent training evidence plan for re-certification.

**Required Artifacts:**

- Shadow Symbiosis finding + halt log.
- Compliant reconstruction episode (I/C/TG + routing summary).
- AB demotion/freeze recommendation.
- SCC corrective action memo.
- Remediation training pack + evidence plan.

**PASS Conditions:**

- Non-lineaged work is rejected; no retroactive cleaning allowed.
- Adoption Bridge repair plan is canon-aligned and testable.
- Remediation pack targets the correct failure modes and preserves Non-Punitive Covenant.



**FAIL Conditions:**

- Allowing imported artifacts to stand.
- Treating Shadow Symbiosis as “process debt” rather than compliance breach.
- Punitive use of HSS/SCP telemetry in remediation.

**Rubric Link:** X-Rubric-Adoption Integrity + I-Rubrics.

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**Capstone SETC-S-X-04-v1.0 — Cross-Track Performance Under Economic Shock**

**Track Eligibility:** Cross-Track (O/P/G)

**Difficulty Band:** D2–D3 (tunable)

**Domain/Sector:** Program operations

**RC:** Medium

**Intended AB Ceiling:** AB2 (reference)

**Non-delegables:** budget override authority remains human/governance

**Economic Envelope:** B\_tokens tight; shock events injected

**MTM Tier:** MTM-1

**Problem Narrative:**

A live multi-step TG operates within a tight economic envelope. Mid-run, token/compute prices spike (Economic Circuit shock). The system requests rescope or override. Team must preserve admissibility without degrading safety.

**Starting State:**

- $I_0^+$ , C, TG, and routing valid.
- Economic Pass is initially green.
- Shock event causes projected cost  $> B$ .

**Learner Tasks:****Operator:**

1. Evaluate shock evidence and pause non-urgent lanes.
2. Decide rescope vs explicit override (with rationale), consistent with constraints.

**Practitioner:**

3. Redesign TG to meet new B (reduce redundancy, lower-cost routing) while preserving objective admissibility.
4. Update routing/contract plan and bounded retry ceilings.

**Auditor/Governance:**

5. Verify economic decision logging and ensure no constraint erosion or silent AB escalation.
6. Issue a compliance note on economic stewardship and admissibility.

**Required Artifacts:**

- Shock response decision memo + lineage rationale.
- TG\_redline + new routing plan.
- Economic delta worksheet.
- Compliance note.

**PASS Conditions:**

- Economic inadmissibility triggers halt/rescope/explicit override; no silent bleed.
- Constraints preserved; AB ceilings maintained.
- Audit confirms correct economic governance behavior.

**FAIL Conditions:**

- Proceeding after shock without admissible plan.
- Cutting constraints to fit budget.
- Any unauthorized AB promotion.

**Rubric Link:** X-Rubric-Economic Stewardship + P/O/G sub-rubrics.

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## Education-Binder SQC Gate Check — Chapter 20

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part IV, Chapter 20 produced.

Gate 2 — v1.0a Canon Supremacy: PASS

Capstones enforce deterministic pipeline order, governance-keyed autonomy, incident doctrine (S-classes, stability tags, O.4/O.5/O.6), and SCC-aligned compliance judgments.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB referenced only for admissibility/decision logic; no formulas, weights, or numeric thresholds introduced.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely; no marketing or speculative framing.

Gate 5 — Mechanistic Testability: PASS

Each capstone specifies roles, tasks, required artifacts, observable PASS/FAIL criteria, and rubric linkage.

Gate 6 — Lineage / Audit Integrity: PASS

All capstones require lineage minima, replayability, and explicit audit verdicts; incident capstones require full O.4 packages.

Gate 7 — Abuse / Incentive Hardening: PASS

Shadow Symbiosis and gaming patterns are treated as compliance blocks; Non-Punitive firewall preserved.

Gate 8 — Completeness at Requested Granularity: PASS

Provides multiple integrated capstones covering launch/audit, incident recovery, adoption integrity repair, and economic shock under cross-track coordination.

---

## Part V — Exams, Rubrics & Certification (C-Layer)

### Chapter 21 — Exam Blueprint + Weighting Rules

Status: Normative blueprint for SETC-v1.0 certification exams.

Framework anchor: Certification is a governance act coupled to autonomy rights, not a training convenience. SETC exams SHALL therefore act as proof surfaces for AB-rights authorization and CEP issuance.

This chapter defines:

- A) the shared exam architecture across tracks,
- B) the weighting logic used to compute exam results, and
- C) issuance/withholding rules aligned to v1.0a Validation & Certification Protocol.

No canonical metric (SI, HSS v2.0, SCP, CI, RB, AB) is redefined or reweighted here.

---

## 21.1 Canonical certification constraints (binding on SETC exams)

### 1. **Earned autonomy principle.**

No actor MAY operate at AB<sub>k</sub> without a valid certification tier  $\geq k$ . SETC exams are the human-competency evidence surface for this rule.

### 2. **Dual-gate rule for AB $\geq$ 2.**

Passing an exam is necessary but not sufficient for AB $\geq$ 2 rights. Certification issuance for AB $\geq$ 2 SHALL be blocked unless (a) SI is in green band, (b) HSS readiness is met, and (c) SCP headroom is met, all as governance-set thresholds. Exams SHALL test literacy and practice for these gates but SHALL NOT set their values.

### 3. **Stability precedence for promotions.**

If stability vital signs conflict with SI, stability SHALL control certification outcomes and promotion eligibility. Exams SHALL include stability-typing competence where

role-relevant.

4. **Three-pillar validation requirement.**

Certification SHALL be based on concurrent passing of all three pillars:

- A. Operator validation,
- B. System validation,
- C. Metric validation.

SETC exams directly measure Pillar A and contribute evidence to Pillars B/C via scenarios and audit artifacts. Failure of any pillar MUST block certification issuance.

5. **CEP issuance coupling.**

Every certification decision SHALL produce a Certification Evidence Packet (CEP) suitable for internal governance boards and external regulators. SETC exam artifacts are mandatory CEP inputs.

---

## 21.2 Shared exam architecture (all tracks)

Each track certification exam SHALL include four components, in the order below, to preserve deterministic evidence collection:

1. **Theory Examination (T-Exam).**

- Closed-book or controlled-open-book per local governance policy.
- Tests canonical knowledge and reasoning about the framework.
- Produces scored item bank evidence.

2. **Applied Practical (P-Prac).**

- Hands-on tasks in the Symbiosis lab environment.
- Validates correct use of canonical primitives under constraints.
- Produces TG artifacts, routing plans, or audit memos depending on track.

3. **Scenario Trials (S-Trials).**

- Capstone-style scenarios drawn from Part IV scenario banks.
- Must be lineage-logged and replayable.
- Produces scenario logs, checkpoint rationales, and stability/failure judgments.

4. **Evidence & Lineage Review (E-Review).**

- Candidate submits a minimal evidence bundle for the practical + scenario work.
- Reviewer checks sufficiency for CEP inclusion (track-appropriate subset).
- Produces PASS/PARTIAL/FAIL evidence sufficiency verdict.

**Invariant:** Any component yielding a **non-auditable** outcome (missing minima, cannot be replayed, or violates constraint supremacy / AB/RB rules) SHALL be scored as FAIL regardless of numeric totals.

---

## 21.3 Weighting model (SETC policy, governance-owned)

### 21.3.1 Weighting formula

For each track exam, define a **Total Exam Score (TES)**:

$$\text{TES} = w\_T T + w\_P P + w\_S S + w\_E E$$

Where:

- T = Theory Examination score (0–100)
- P = Applied Practical score (0–100)
- S = Scenario Trials score (0–100)
- E = Evidence & Lineage Review score (0–100)
- weights sum to 1.0

**Policy ownership:** Weights are SETC program policy and SHALL be approved and version-pinned by the local Governance Body. They MAY vary by sector overlay but MUST NOT relax v1.0a certification constraints.

### 21.3.2 Track-specific weights (baseline)

Baseline weights below are normative defaults for SETC-v1.0. Governance MAY tune within the allowed bands shown, but SHALL preserve cross-pillar coverage.

#### O-Cert (Operator)

- (allowed 0.30–0.40)
- (allowed 0.15–0.25)
- (allowed 0.30–0.40)
- (allowed 0.05–0.15)

Rationale: Operators are evaluated primarily on safe interpretation and checkpoint behavior under scenarios, with sufficient theory to prevent intent/constraint errors.

#### P-Cert (Practitioner)

- (allowed 0.20–0.30)
- (allowed 0.30–0.40)
- (allowed 0.25–0.35)
- (allowed 0.05–0.15)

Rationale: Practitioners must demonstrate TG/constraint/MCP engineering correctness; applied work is the dominant evidence surface.

### **G-Cert (Auditor / Governance)**

- (allowed 0.25–0.35)
- (allowed 0.10–0.20)
- (allowed 0.30–0.40)
- (allowed 0.15–0.25)

Rationale: Auditors must show high-fidelity incident and lineage judgment and produce regulator-legible evidence; E-Review is elevated accordingly.

### **I-Cert (Instructor)**

- (allowed 0.15–0.25)
- (allowed 0.20–0.30)
- (allowed 0.20–0.30)
- (allowed 0.25–0.35)

Rationale: Instructors are custodians of canon fidelity, assessment reliability, and CEP-equivalent training evidence; evidence stewardship is primary.

---

## **21.4 Passing logic (numeric + pillar gating)**

### **21.4.1 Numeric pass thresholds**

Baseline numeric thresholds are SETC policy defaults and **MUST** be governance-pinned per deployment:

- O-Cert: TES  $\geq 80$
- P-Cert: TES  $\geq 85$
- G-Cert: TES  $\geq 90$
- I-Cert: TES  $\geq 95$

Governance **MAY** increase these thresholds, but **MAY NOT** decrease them below baseline without a formal change-control rationale and public delta log (SQC change-control rule).

### **21.4.2 Mandatory pillar blocks (non-negotiable)**

Regardless of TES:

1. **Any FAIL in Scenario Trials (S-Trials) for a high-RC or RB-proximate case SHALL block certification.**

Rationale: stability and safety precedence.

2. **Any Evidence & Lineage Review verdict of FAIL SHALL block certification.**  
Missing or non-replayable evidence is a certification-level defect.
  3. **Any proven anti-gaming violation SHALL force PARTIAL status and remediation before re-sitting.**  
Remediation SHALL be non-punitive and framed as safety calibration.
  4. **Any attempt to bypass governance ceilings (AB/RB) or constraints during practical/scenario work SHALL be scored FAIL.**  
Certification cannot authorize actors who violate invariants.
- 

## 21.5 Retake and remediation rules

1. Candidates receiving PARTIAL status SHALL complete a targeted remediation plan tied to the failed component(s) before retake.
  2. Retakes SHALL be limited to the failed components unless governance mandates a full re-sit (e.g., evidence failure or integrity breach).
  3. Any candidate with repeated FAILs in the same component across two sittings SHALL be referred to Governance for role-scope review and possible AB demotion (if currently certified).
- 

## 21.6 Exam blueprint cross-reference map (to SETC Parts II–IV)

- **Theory pools** map to Part II shared literacy chapters (5–10) and track curricula (11–14).
  - **Practicals** map to A-Layer skills in Chapters 11–14, using canonical labs.
  - **Scenario trials** map to Part IV banks (16–20); D-bands align to candidate certification tier sought.
  - **Evidence review** maps to Framework Chapter 17 CEP minima and Appendix O incident doctrine when S2+ facets occur.
- 

## Education-Binder SQC Gate Check — Chapter 21

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Part V, Chapter 21 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Blueprint explicitly binds to Chapter 17 certification protocol: earned autonomy, dual-gate, stability precedence, three-pillar validation, CEP coupling.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

No SI/HSS/SCP/CI/RB/AB formulas, weights, or thresholds redefined; only referenced for gating literacy.

Gate 4 — Normative Technical Voice: PASS

All requirements use MUST/SHALL/MAY; no marketing or speculative statements.

Gate 5 — Mechanistic Testability: PASS

Weighting formula, allowed bands, pass logic, and pillar blocks are explicit and testable.

Gate 6 — Lineage Recoverability: PASS

Evidence review and CEP coupling are mandatory; non-auditable outcomes force FAIL.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Stability precedence and S-Trials include stability typing where role-relevant; no thresholds invented.

Gate 8 — Completeness at Requested Granularity: PASS

Blueprint includes architecture, formula, track-weights, pass logic, remediation, and cross-refs.

---

Part V — Exams, Rubrics & Certification (C-Layer)

Chapter 22 — O-Cert Exam (Theory + Practical)

Status: Normative Operator certification exam specification for SETC-v1.0.

Canonical anchor: O-Cert is the human-competency evidence surface for Cert-0/Cert-1/Cert-2 autonomy rights coupling. Certification is a governance act tied to AB ceilings, gated by SI/HSS/SCP and stability precedence.

This chapter defines O-Cert prerequisites, exam components, item domains, practical tasks, scenario trials, scoring, and CEP outputs. Canonical metrics are referenced only.

---

## 22.1 Purpose and scope



1. The O-Cert Exam SHALL validate that a candidate Symbiote Operator can:
    - originate and normalize intent into admissible Structured Intent Objects,
    - supervise execution safely within RB/AB constraints,
    - interpret lineage and telemetry,
    - respond correctly to drift/decay and economic circuit triggers, and
    - preserve Non-Punitive human-metric discipline.
  2. O-Cert applies to all operators seeking **Cert-0 / Cert-1 / Cert-2** autonomy authorization.
  3. O-Cert SHALL NOT authorize AB ceilings higher than those permitted by:
    - issued certification tier,
    - operator's current HSS tier eligibility, and
    - SCP headroom gates.
- 

## 22.2 Prerequisites and eligibility (must be verified pre-exam)

1. **Foundation completion.** Candidate MUST have completed SETC Part II (Ch.5–10) and O-Track curriculum (Ch.11).
  2. **HSS tier admissibility.** Candidate MUST be operating within a valid HSS safety tier for the ceiling sought:
    - HSS-B1 → eligible AB0–AB1 only under supervision and no RB-prox workflows.
    - HSS-B2 → eligible AB2 under normal RB checkpointing.
    - HSS-B3 → eligible AB3 only with explicit opt-in and governance endorsement (not an O-Cert target).
  3. **SCP headroom and fatigue state.** Candidate MUST show SCP headroom sufficient for the planned scenario concurrency; SCP anomalies SHALL block sitting until cooldown or demotion resolves.
  4. **Governance sign-off.** Governance Body MUST approve the sit and pin policy versions to the exam lineage.
- 

## 22.3 Exam structure (binding order)

O-Cert SHALL include the four components defined in Chapter 21, executed in order:

1. Theory Examination (T-Exam)
2. Applied Practical (P-Prac)
3. Scenario Trials (S-Trials)
4. Evidence & Lineage Review (E-Review)

Baseline sizing (SETC policy default):

- **T-Exam:** 30 items.
- **P-Prac:** 2 hands-on tasks.
- **S-Trials:** 2 scenarios (minimum).
- **E-Review:** lineage-reading + evidence sufficiency check.

Governance MAY increase counts, but MUST preserve coverage of each pillar and the binding order.

---

## 22.4 Theory Examination (T-Exam)

### 22.4.1 Domain coverage

Items SHALL be distributed across these canonical knowledge domains:

#### A. Intent + Constraint literacy

- identify underspecification, missing constraints, and non-delegables.
- distinguish C\_legal / C\_safety / C\_econ roles.

#### B. AB/RB discipline

- select admissible AB ceilings for tasks given risk class and reversibility.
- identify when RB checkpoints are mandatory.

#### C. Economic Circuit operator behavior

- interpret Economic Pass outcomes; recognize inadmissibility; choose rescope vs override pathways.

#### D. Lineage and transparency traces

- reconstruct an episode to I + C + TG + AB/RB + Economic Pass.

#### E. Failure mode recognition (operator-relevant)

- distinguish drift vs decay signatures and correct first response (halt, safe-mode, evidence capture).

#### F. Non-punitive human-metrics rules

- correct usage of HSS/SCP telemetry; prohibited managerial/HR use.

## 22.4.2 Item types

- 60% multiple-choice with single best answer
- 20% multi-select (constraint / AB gating logic)
- 20% short structured responses (intent repair, lineage reconstruction)

## 22.4.3 Pass rule

T-Exam score T is computed per item bank rubric. A score <70 triggers component FAIL regardless of TES. (Operator competency floor.)

---

# 22.5 Applied Practical (P-Prac)

## 22.5.1 Practical Task 1 — Intent Normalization + Constraint Repair

Candidate SHALL be given a low-fidelity natural-language brief and MUST produce:

1. a Structured Intent Object I',
2. explicit C vector (typed C\_legal/C\_safety/C\_econ),
3. a budget B with a justification,
4. a short admissibility rationale.

### Failure conditions:

- missing non-delegables,
- implicit constraints,
- budgetless intent, or
- proposing execution outside E mediation.

## 22.5.2 Practical Task 2 — Lineage Reading + Checkpoint Adjudication

Candidate SHALL review a pre-recorded Symbiosis episode and MUST:

1. identify the AB state per node,
2. locate RB-prox checkpoints,
3. decide approve / reject / request re-plan,
4. document rationale tied to constraints and reversibility.

### Failure conditions:

- approving a node that violates C,
  - missing an RB-prox checkpoint,
  - treating SI as sufficient for AB promotion, or
  - providing non-auditable rationale.
-

## 22.6 Scenario Trials (S-Trials)

### 22.6.1 Scenario selection

Two scenarios SHALL be selected from Part IV Operator or Capstone banks with at least one D2+ case.

At minimum, S-Trials MUST cover:

1. **RB-adjacent decision event**
  - candidate receives a Dry-Run, notices RB proximity, and must either demote autonomy, add checkpoints, or halt.
2. **Economic shock or bleed-risk event**
  - candidate must recognize inadmissibility, rescope intent, or escalate for explicit override.

### 22.6.2 Required outputs

For each scenario trial, the candidate MUST produce:

- checkpoint decision log with rationale,
- halt/rescope/escalation actions if triggered,
- a minimal lineage slice pointer and summary.

### 22.6.3 Blocking failures

Regardless of numeric S score, any of the following SHALL yield S-Trials FAIL and block certification:

- unauthorized AB escalation attempt,
- RB checkpoint skip,
- continued reliance after drift/decay evidence,
- any action producing non-replayable lineage.

---

## 22.7 Evidence & Lineage Review (E-Review)

1. Candidate SHALL submit an evidence bundle containing:
    - I' + C + B artifact from P-Prac-1,
    - lineage reading memo from P-Prac-2,
    - scenario trial logs + rationale,
    - any safe-mode / halt actions taken.
  2. Reviewer SHALL score evidence sufficiency for CEP use as PASS / PARTIAL / FAIL.
  3. Any FAIL here blocks certification issuance.
-

## 22.8 Scoring and certification outcome

1. **Weighting:** O-Cert uses Chapter 21 baseline weights:
    - T-Exam 35%
    - P-Prac 20%
    - S-Trials 35%
    - E-Review 10%
  2. **Numeric threshold:** TES  $\geq$  80 is required. (Governance MAY raise, not lower.)
  3. **Pillar blocks:**
    - Any S-Trials FAIL → certification blocked.
    - Any E-Review FAIL → certification blocked.
    - Integrity / anti-gaming violations → PARTIAL status + remediation.
  4. **Issuance mapping:**
    - TES pass + pillar pass → O-Cert issued at tier aligned to the AB ceiling tested and HSS/SCP gates currently met.
    - If HSS/SCP gates do not support the tier sought, Governance SHALL issue the highest admissible tier or withhold issuance pending readiness.
- 

## 22.9 CEP outputs (mandatory)

Upon completion, the program SHALL generate a Certification Evidence Packet including:

- scored T-Exam results,
  - practical artifacts and rubrics,
  - scenario lineage slices,
  - evidence sufficiency verdict,
  - governance approval record and policy version pins,
  - current HSS tier + SCP headroom attestation (privacy-compliant, redacted as required).
- 

## Education-Binder SQC Gate Check — Chapter 22

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Part V, Chapter 22 produced.

Gate 2 — v1.0a Canon Supremacy: PASS  
Exam is explicitly coupled to Chapter 17 earned autonomy, dual-gate SI/HSS/SCP rule, stability precedence, and CEP issuance.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

HSS/SCP/SI/RB/AB referenced only for eligibility and gating; no formulas or thresholds invented.

Gate 4 — Normative Technical Voice: PASS

All requirements expressed with MUST/SHALL/MAY, no marketing tone.

Gate 5 — Mechanistic Testability: PASS

Prereqs, component order, tasks, failure blocks, and scoring are explicit and checkable.

Gate 6 — Lineage Recoverability: PASS

All practical/scenario outputs require lineage slices reconstructable to canonical minima; non-replayable evidence blocks issuance.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Operator-relevant drift/decay recognition and safe response are mandatory in theory and scenarios.

Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive human-metrics firewall and anti-gaming outcomes are binding in eligibility, scoring, and remediation.

---

## Part V — Exams, Rubrics & Certification (C-Layer)

### Chapter 23 — P-Cert Exam (Practitioner / Hybrid Intelligence Architect)

Status: Normative Practitioner certification exam specification for SETC-v1.0.

Canonical anchor: P-Cert is a governance-coupled autonomy authorization instrument. It validates “Hybrid Intelligence Architect / Practitioner” competency as Pillar-A evidence under the v1.0a Certification Protocol.

Certification remains subject to earned-autonomy rights coupling, dual-gate SI/HSS/SCP rule, and stability precedence.

This chapter defines P-Cert prerequisites, exam components, theory domains, practical tasks, scenario trials, evidence review, scoring, and CEP outputs. Canonical metrics are referenced only.

---

## 23.1 Purpose and scope

1. The P-Cert Exam SHALL validate that a certified Practitioner can safely **design, instrument, and operate** Symbiosis workflows at the AB ceilings authorized by their tier and governance policy, including:
  - Task Graph (TG) design and safe concurrency,

- Constraint Vector application and supremacy enforcement,
  - MCP/contract routing using Capability Indices,
  - multi-tier memory and lineage engineering,
  - Economic Circuit tuning to prevent bleed while preserving SI,
  - stability monitoring and recovery-aware design.  
(Competency domains are consistent with canon and earlier role-spec background.)
2. P-Cert applies to all candidates seeking **Cert-1 / Cert-2 / (where locally permitted) Cert-3** practitioner rights.
  3. P-Cert SHALL NOT authorize AB ceilings above those permitted by:
    - issued certification tier,
    - candidate HSS eligibility tier, and
    - SCP headroom gates, all set locally by governance.
- 

## 23.2 Prerequisites and eligibility (verified pre-exam)

1. **Foundation completion.** Candidate MUST have completed SETC Part II (Ch.5–10) and P-Track curriculum (Ch.12).
  2. **HSS tier admissibility.** Candidate MUST be within a valid HSS tier for the ceiling sought (per Chapter 8 + Appendix H). HSS bands are governance-owned and not set by SETC.
  3. **SCP headroom.** Candidate MUST show SCP headroom sufficient for the intended TG concurrency and AB band. SCP overload indicators SHALL block sitting until cooldown or demotion resolves.
  4. **Governance sign-off.** Governance Body MUST approve the sit and pin policy versions (P<sub>v</sub> / CCMT overlay) into the exam lineage.
- 

## 23.3 Exam structure (binding order)

P-Cert SHALL include the four components defined in Chapter 21, executed in deterministic order:

1. Theory Examination (T-Exam)
2. Applied Practical (P-Prac)
3. Scenario Trials (S-Trials)
4. Evidence & Lineage Review (E-Review)

Baseline sizing (SETC policy default):

- **T-Exam:** 50 items.
- **P-Prac:** 3 hands-on engineering tasks.

- **S-Trials:** 2 scenarios minimum, with one D3 capstone where Cert-2 is sought.
- **E-Review:** evidence/lineage sufficiency submission.

Governance MAY increase counts, but MUST preserve coverage and order.

---

## 23.4 Theory Examination (T-Exam)

### 23.4.1 Domain coverage

Items SHALL be distributed across these canonical knowledge domains:

#### A. TG formalism and safe concurrency

- hierarchical decomposition, dependency typing, RB checkpoint placement, and rollback-safe DAG structure.

#### B. Constraint Vector supremacy and policy pinning

- C injection rules, hard vs soft constraints, CCMT overlay usage, and conflict resolution.

#### C. MCP/contract routing and Capability Index use

- selecting tools/agents by CI fit, reliability tier, risk class, and arbitration hooks.

#### D. Memory + lineage engineering

- tiered memory schemas, retrieval waterfalls, lineage immutability and replay minima.

#### E. Economic Circuit v2 practice

- Economic Pass interpretation; cost-utility tuning; denial/defer logic under CS/QL constraints; bleed prevention without SI erosion.

#### F. Stability literacy (drift vs decay) for designers

- embedding monitors, predicting failure surfaces, and designing recovery ladder-ready TGs.

#### G. AB/RB governance coupling

- earned-autonomy rules, dual-gate logic, stability precedence, and safe-harbor boundaries.

### 23.4.2 Item types

- 50% multiple-choice
- 30% multi-select (routing / constraint / AB logic)



- 20% short structured responses (design critiques, economic tuning rationale, stability anticipation)

### **23.4.3 Pass rule**

T-Exam score  $T < 75$  triggers component FAIL regardless of TES. (Practitioner theory floor.)

---

## **23.5 Applied Practical (P-Prac)**

### **23.5.1 Practical Task 1 — TG Design from Messy Objective**

Candidate SHALL receive an ambiguous multi-objective brief and MUST produce:

1. TG<sub>o</sub> with typed dependencies, safe concurrency, and explicit RB checkpoints,
2. a short admissibility rationale demonstrating reversibility awareness,
3. a Dry-Run plan for RB-prox nodes.

#### **Failure conditions:**

- missing RB checkpoints where required,
- unsafe concurrency (violating reversibility),
- TG without dependency typing,
- any implied AB promotion not governance-approved.

### **23.5.2 Practical Task 2 — Routing + Contract Engineering**

Candidate SHALL be given a TG and three candidate agents/tools with different CI reliabilities and cost tiers, and MUST:

1. assign routing per node,
2. draft MCP contract stubs including arbitration ceilings and constraint bindings,
3. justify routing against RC and B.  
(Competency aligns with canon; task shape supported by background role spec.)

#### **Failure conditions:**

- routing that ignores CI/RC mismatch,
- contracts missing constraint binding,
- arbitration ceilings absent or unsafe.

### **23.5.3 Practical Task 3 — Economic Circuit Tuning Without SI Loss**

Candidate SHALL be provided a pilot workflow whose projected cost exceeds B and MUST:

1. compute an Economic Pass assessment,
2. revise TG/routing to reduce projected cost while preserving objective admissibility,

3. document SI-per-dollar tradeoff reasoning.

**Failure conditions:**

- “saving cost” by weakening C,
  - tuning that silently increases AB,
  - proceeding without explicit Economic Pass justification.
- 

## **23.6 Scenario Trials (S-Trials)**

### **23.6.1 Scenario selection**

Two scenarios SHALL be selected from Part IV Practitioner or Capstone banks.

Minimum coverage:

1. **High-RC constraint engineering case (D2+):**  
Candidate must inject/repair C, define non-delegables, and revise TG accordingly.
2. **Stability-emergence case (D3 where Cert-2 sought):**  
Candidate must detect drift/decay surface, trigger safe-mode or re-plan pathway, and propose recovery ladder changes.

### **23.6.2 Required outputs**

For each scenario trial, candidate SHALL produce:

- TG\_redline (if re-plan required),
- routing/contract updates,
- economic delta note if B affected,
- a minimal lineage slice pointer and summary explaining decisions.

### **23.6.3 Blocking failures**

Any of the following SHALL yield S-Trials FAIL and block certification:

- constraint erosion to satisfy cost or speed,
  - unauthorized AB escalation attempt,
  - executing after detected drift/decay without safe response,
  - producing non-replayable lineage.
- 

## **23.7 Evidence & Lineage Review (E-Review)**

1. Candidate SHALL submit an evidence bundle containing:

- TG<sub>0</sub> + admissibility memo + Dry-Run plan,
  - routing map + MCP contract stubs,
  - Economic Pass worksheet + TG/routing deltas,
  - scenario outputs + lineage slice pointers.
2. Reviewer SHALL score sufficiency for CEP use as PASS / PARTIAL / FAIL.
  3. Any FAIL blocks certification issuance.
- 

## 23.8 Scoring and certification outcome

1. **Weighting:** P-Cert uses Chapter 21 baseline weights:
    - T-Exam 25%
    - P-Prac 35%
    - S-Trials 30%
    - E-Review 10%
  2. **Numeric threshold:** TES  $\geq$  85 required. (Governance MAY raise, not lower.)
  3. **Pillar blocks:**
    - Any S-Trials FAIL → certification blocked.
    - Any E-Review FAIL → certification blocked.
    - Integrity / anti-gaming violation → PARTIAL status + remediation.
  4. **Issuance mapping:**
    - TES pass + pillar pass → P-Cert issued at tier aligned to AB ceiling tested and current HSS/SCP gates.
    - If HSS/SCP gates do not support the tier sought, Governance SHALL issue the highest admissible tier or withhold pending readiness.
- 

## 23.9 CEP outputs (mandatory)

Upon completion, the program SHALL generate a Certification Evidence Packet including:

- scored T-Exam results,
  - practical artifacts and rubrics,
  - scenario lineage slices and re-plan deltas,
  - evidence sufficiency verdict,
  - governance approval record and pinned policy versions,
  - current HSS tier + SCP headroom attestation (privacy-compliant, redacted as required).
-

# Education-Binder SQC Gate Check — Chapter 23

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part V, Chapter 23 produced.

Gate 2 — v1.0a Canon Supremacy: PASS

Exam binds to Chapter 17 earned autonomy, dual-gate SI/HSS/SCP rule, stability precedence, and CEP coupling; no external draft overrides.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB referenced only for eligibility and gating literacy; no formulas, weights, or thresholds introduced.

Gate 4 — Normative Technical Voice: PASS

All requirements use MUST/SHALL/MAY; no marketing tone.

Gate 5 — Mechanistic Testability: PASS

Prereqs, component order, tasks, observable failures, and scoring are explicit.

Gate 6 — Lineage Recoverability: PASS

All practicums/scenarios mandate lineage slices suitable for CEP replay; non-replayable evidence blocks issuance.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Practitioner stability literacy is tested in theory and scenario trials without inventing thresholds.

Gate 8 — Abuse / Incentive Hardening: PASS

Blocking conditions prevent constraint erosion, silent AB creep, and evidence theater; integrity violations route to remediation.

---

Part V — Exams, Rubrics & Certification (C-Layer)

Chapter 24 — G-Cert Exam (Auditor / Governance Lead)

Status: Normative Auditor / Governance certification exam specification for SETC-v1.0.

Canonical anchor: G-Cert is the human-competency evidence surface for Governance Leads under the v1.0a Validation & Certification Protocol. Certification is a governance act coupled to autonomy rights (AB ceilings), dual-gated by SI/HSS/SCP, with stability precedence.

This chapter defines G-Cert prerequisites, exam components, theory domains, practical tasks, scenario trials, evidence review, scoring, and CEP outputs. Canonical metrics are referenced only.

---

## 24.1 Purpose and scope

1. The G-Cert Exam SHALL validate that a certified Auditor / Governance Lead can:
    - verify lineage minima and replayability,
    - adjudicate AB/RB eligibility and ceiling enforcement,
    - classify incidents using drift vs decay discipline and stability precedence,
    - validate Engine/Agentic conformance evidence required for  $AB \geq 2$  claims, and
    - produce regulator-legible Certification Evidence Packets (CEPs).
  2. G-Cert applies to candidates seeking **Cert-2 / Cert-3 Governance rights** where locally permitted.
  3. G-Cert SHALL NOT authorize AB ceilings beyond those admissible by:
    - issued certification tier,
    - candidate HSS tier eligibility, and
    - SCP headroom gates, all set by local governance.
- 

## 24.2 Prerequisites and eligibility (verified pre-exam)

1. **Foundation completion.** Candidate MUST have completed SETC Part II (Ch.5–10) and G-Track curriculum (Ch.13).
  2. **HSS tier admissibility.** Candidate MUST be within a valid HSS tier for the AB ceiling sought; thresholds are governance-owned.
  3. **SCP headroom.** Candidate MUST show SCP headroom sufficient for the intended audit workload and scenario concurrency; SCP anomalies SHALL block sitting until cooldown or demotion resolves.
  4. **Governance sign-off.** Governance Body MUST approve the sit and pin the active policy/overlay versions into the exam lineage.
- 

## 24.3 Exam structure (binding order)

G-Cert SHALL include the four components defined in Chapter 21, executed in deterministic order:

1. Theory Examination (T-Exam)
2. Applied Practical (P-Prac)
3. Scenario Trials (S-Trials)
4. Evidence & Lineage Review (E-Review)

Baseline sizing (SETC policy default):

- **T-Exam:** 75 items.

- **P-Prac:** 2 hands-on audit/governance tasks.
- **S-Trials:** 2 scenarios minimum, with at least one D3 / S2+ front.
- **E-Review:** CEP-grade evidence sufficiency submission.

Governance MAY increase counts, but MUST preserve coverage and binding order.

---

## 24.4 Theory Examination (T-Exam)

### 24.4.1 Domain coverage

Items SHALL be distributed across these canonical domains:

#### A. Certification protocol & rights coupling

- earned autonomy, dual-gate SI/HSS/SCP rule, stability precedence, three-pillar validation, and CEP coupling.

#### B. Lineage minima and replayability

- required lineage fields and why missing minima cap SI and block AB gain; audit reconstruction logic.

#### C. AB/RB governance and node-level ceilings

- AB as governance primitive; conservative-cap enforcement; RB checkpoint triggers; safe-harbor limits.

#### D. Stability vital signs + drift vs decay typing

- canonical drift failure modes, stability band precedence, separate drift lineage stream, and recovery coupling.

#### E. Conformance and resilience evidence for $AB \geq 2$

- safe-mode/kill-switch/rollback/drift/entanglement conformance expectations and drill evidence use in compliance claims.

#### F. Anti-gaming and misuse discipline

- detection patterns; governance actions that preserve Non-Punitive Covenant; prohibition of metric theater.

### 24.4.2 Item types

- 40% multiple-choice
- 40% multi-select (audit gates, AB/RB eligibility logic, stability precedence)

- 20% structured short responses (incident classification, lineage sufficiency reasoning)

### **24.4.3 Pass rule**

T-Exam score  $T < 80$  triggers component FAIL regardless of TES. (Governance theory floor.)

---

## **24.5 Applied Practical (P-Prac)**

### **24.5.1 Practical Task 1 — Full Lineage Replay and Sufficiency Audit**

Candidate SHALL receive a simulated AB2 episode with full logs and MUST:

1. Reconstruct the episode to baseline intent, active constraints, TG trace, AB/RB decisions, Economic Pass, stability slice, and human override rationales.
2. Identify any missing minima or non-auditable gaps.
3. Issue a sufficiency verdict: PASS / PARTIAL / FAIL with remediation list.

#### **Failure conditions:**

- approving sufficiency with missing minima,
- failing to trace AB/RB events, or
- producing non-replayable reasoning.

### **24.5.2 Practical Task 2 — AB/RB Ceiling Audit with Policy Overlay**

Candidate SHALL be given:

- a sector CCMT overlay,
- certification tiers for operators/practitioners,
- a TG with node-level caps, and
- SI/HSS/SCP readiness summaries (values treated as governance-set).

Candidate MUST:

1. Verify whether AB2 is admissible for the workflow and for each node.
2. Detect any ceiling conflicts and enforce the most conservative cap.
3. Produce a governance memo approving, demoting, or freezing AB with rationale.

#### **Failure conditions:**

- allowing AB to exceed node or policy caps,
  - treating SI alone as sufficient for AB promotion,
  - inventing numeric thresholds.
-

## 24.6 Scenario Trials (S-Trials)

### 24.6.1 Scenario selection

Two scenarios SHALL be selected from Part IV Auditor and Capstone banks. Minimum coverage:

1. **S2+ Stability Incident Adjudication (D3)**
  - Candidate receives drift/decay evidence, must classify, enforce stability precedence, trigger safe-mode/demotion where required, and require a complete incident evidence bundle consistent with Appendix-O expectations.
2. **Shadow / Non-lineaged Decision Audit (D2+)**
  - Candidate detects lineage-absent decisions, rejects artifacts, and mandates corrective training + governance controls.

### 24.6.2 Required outputs

For each S-Trial, candidate SHALL produce:

- stability typing memo (drift vs decay) with canonical tag justification,
- AB/RB and Bridge disposition recommendation,
- minimal lineage slice pointer annotated for replay,
- remediation or recovery ladder requirements.

### 24.6.3 Blocking failures

Any of the following SHALL yield S-Trials FAIL and block certification:

- mis-typing drift as decay (or vice-versa) where evidence is sufficient,
- allowing  $AB \geq 2$  operation without stability-green precedence,
- accepting non-lineaged artifacts,
- failure to require conformance/drill evidence when  $AB \geq 2$  claim is in scope.

---

## 24.7 Evidence & Lineage Review (E-Review)

1. Candidate SHALL submit a CEP-grade evidence bundle containing:
  - lineage replay audit + sufficiency verdict,
  - AB/RB ceiling audit memo,
  - scenario trial logs + stability typing memos + lineage slice pointers,
  - any conformance/drill evidence demanded or verified.
2. Reviewer SHALL score sufficiency as PASS / PARTIAL / FAIL for CEP use.
3. Any FAIL blocks certification issuance.



---

## 24.8 Scoring and certification outcome

1. **Weighting:** G-Cert uses Chapter 21 baseline weights:
  - T-Exam 30%
  - P-Prac 15%
  - S-Trials 35%
  - E-Review 20%
2. **Numeric threshold:** TES  $\geq 90$  required. (Governance MAY raise, not lower.)
3. **Pillar blocks:**
  - Any S-Trials FAIL  $\rightarrow$  certification blocked.
  - Any E-Review FAIL  $\rightarrow$  certification blocked.
  - Integrity / anti-gaming violation  $\rightarrow$  PARTIAL status + remediation.
4. **Issuance mapping:**
  - TES pass + pillar pass  $\rightarrow$  G-Cert issued at tier aligned to AB ceiling tested and current HSS/SCP gates.
  - If HSS/SCP gates do not support the tier sought, Governance SHALL issue the highest admissible tier or withhold pending readiness.

---

## 24.9 CEP outputs (mandatory)

Upon completion, the program SHALL generate a Certification Evidence Packet including:

- scored T-Exam results,
- practical audit artifacts and rubrics,
- scenario lineage slices + stability typing memos,
- evidence sufficiency verdict,
- governance approval record and pinned policy versions,
- HSS tier + SCP headroom attestation (privacy-compliant, redacted as required).

---

## Education-Binder SQC Gate Check — Chapter 24

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Part V, Chapter 24 produced.

Gate 2 — v1.0a Canon Supremacy: PASS

Exam binds directly to Chapter 17 certification protocol (earned autonomy, dual-gate SI/HSS/SCP, stability precedence, three-pillar validation, CEP coupling).

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB referenced only for literacy and gating; no formulas, weights, or thresholds introduced.

Gate 4 — Normative Technical Voice: PASS

All requirements use MUST/SHALL/MAY; marketing and speculative phrasing prohibited.

Gate 5 — Mechanistic Testability: PASS

Prereqs, component order, tasks, blocking failures, and scoring are explicit and verifiable.

Gate 6 — Lineage Recoverability: PASS

Practicals and scenarios require lineage minima checks and replay-ready slice pointers; missing minima blocks issuance.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Theory and S-Trials require explicit drift/decay classification with stability-precedence enforcement.

Gate 8 — Abuse / Incentive Hardening: PASS

Blocks certification on metric theater, non-lineaged acceptance, and unauthorized AB creep; remediation remains non-punitive.

---

## Part V — Exams, Rubrics & Certification (C-Layer)

### Chapter 25 — I-Cert Exam (Instructor / Certification Steward)

Status: Normative Instructor certification exam specification for SETC-v1.0.

Canonical anchor: While Framework v1.0a enumerates certification for Operators, Hybrid Intelligence Architects, and Governance Leads, SETC introduces Instructor certification as a **program-layer governance extension** that administers those canonical certifications without altering their rules. I-Cert therefore certifies **pedagogical and assessment stewardship**, not a new autonomy band.

Certification remains a governance act with earned-autonomy coupling, dual-gate SI/HSS/SCP rule, stability precedence, and mandatory CEP outputs. I-Cert exams SHALL enforce these invariants in delivery and grading.

Human-metrics non-punitive covenant and anti-gaming discipline are binding on instructors and exam boards.

This chapter defines I-Cert prerequisites, exam components, theory domains, practical tasks, scenario trials, evidence review, scoring, and CEP outputs. Canonical metrics are referenced only.

---

## 25.1 Purpose and scope

1. The I-Cert Exam SHALL validate that a certified Instructor can safely and deterministically:
  - deliver SETC curricula without ontology drift,
  - administer O-/P-/G-Cert assessments to canonical standards,
  - design or select scenarios using the Scenario Design Standard (Ch.15),
  - grade with rubric fidelity and anti-gaming awareness,
  - generate CEP-grade evidence bundles, and
  - enforce the Non-Punitive Covenant and managerial firewall in all training contexts.
2. I-Cert applies to candidates seeking authority to teach and certify any SETC track.
3. I-Cert does **not** grant AB ceiling rights; it grants **assessment stewardship rights** that are bounded by Governance policy.

---

## 25.2 Prerequisites and eligibility (verified pre-exam)

1. **Foundation completion.** Candidate MUST have completed SETC Part II (Ch.5–10) and I-Track curriculum (Ch.14).
2. **Certification standing.** Candidate MUST already hold at least one current canonical certification (O-Cert or P-Cert), and SHOULD hold G-Cert if they will administer G-Cert exams. (Governance MAY require G-Cert as a hard prerequisite.)
3. **Human-metrics discipline attestation.** Candidate MUST attest to enforcement of:
  - managerial firewall for HSS, and
  - anti-gaming handling as calibration review, not operator penalty.
4. **Governance sign-off.** Governance Body MUST approve the sit and pin active policy/overlay versions into the exam lineage.

---

## 25.3 Exam structure (binding order)

I-Cert SHALL include the four components defined in Chapter 21, executed in deterministic order:

1. Theory Examination (T-Exam)
2. Applied Practical (P-Prac)
3. Scenario Trials (S-Trials)
4. Evidence & Lineage Review (E-Review)

Baseline sizing (SETC policy default):

- **T-Exam:** 30 items.
- **P-Prac:** 2 instructor practicums.
- **S-Trials:** 1 instructor-orchestration scenario + 1 cross-track grading scenario.
- **E-Review:** CEP-grade evidence sufficiency submission.

Governance MAY increase counts, but MUST preserve coverage and binding order.

---

## 25.4 Theory Examination (T-Exam)

### 25.4.1 Domain coverage

Items SHALL be distributed across these canonical domains:

#### A. Canon fidelity and drift prevention

- four-layer ontology, primitives, and metric-reference rules; instructor obligations to avoid metaphor/term drift.

#### B. Assessment governance and rights coupling

- earned autonomy, dual-gate SI/HSS/SCP, stability precedence, three-pillar validation, and CEP coupling, as they affect exam administration.

#### C. Rubric reliability and anti-gaming

- detecting metric theater, prompt-reward seeking, volatility spikes, and cross-domain inconsistencies; correct non-punitive response.

#### D. Scenario standard literacy

- canonical template fields, difficulty bands, and minimum skill surfaces per track (Part IV).

#### E. Privacy + managerial firewall

- prohibited secondary use of HSS and consequences for misuse in training programs.

### 25.4.2 Item types

- 50% multiple-choice
- 30% multi-select (governance/weighting/anti-gaming logic)
- 20% structured short response (canon-fidelity corrections, rubric-consistency judgments)

### 25.4.3 Pass rule

T-Exam score  $T < 80$  triggers component FAIL regardless of TES. (Instructor theory floor.)

---

## **25.5 Applied Practical (P-Prac)**

### **25.5.1 Practical Task 1 — Canon-Fidelity Micro-Lecture + Calibration**

Candidate SHALL deliver a 20–30 minute micro-lecture on an assigned foundation topic (e.g., AB/RB discipline, Economic Pass behavior, lineage minima) and MUST:

1. present definitions strictly aligned to v1.0a,
2. explicitly mark any examples from older drafts as non-canonical, and
3. perform a short live calibration check with learners (intent repair or AB choice) using the canonical rubric language.

#### **Failure conditions:**

- introducing non-canonical terms/weights,
- using speculative/marketing tone during normative instruction,
- failing to correct learner drift.

### **25.5.2 Practical Task 2 — Exam Administration + Secure Grading**

Candidate SHALL administer a mini-assessment drawn from O-Cert and P-Cert pools and MUST:

1. enforce deterministic exam order and controls,
2. score using the provided master rubrics without alteration,
3. identify any anti-gaming indicators and document the required calibration response, and
4. produce a grading memo suitable for CEP inclusion.

#### **Failure conditions:**

- rubric drift or ad-hoc criteria,
  - punitive treatment of HSS-related anomalies,
  - missing anti-gaming signals,
  - producing non-auditable grading rationale.
- 

## **25.6 Scenario Trials (S-Trials)**

### **25.6.1 Scenario selection**

Two scenarios SHALL be selected:

### 1. Instructor Orchestration Scenario (D2+)

- Candidate runs a short cross-track lab where an Operator and Practitioner collaborate.
- The lab injects one controlled failure (constraint miss, drift signal, or economic shock).
- Candidate must intervene canonically, preserve non-punitive handling, and keep lineage complete.

### 2. Cross-Track Grading Scenario (D3)

- Candidate receives a capstone evidence bundle with subtle flaws (missing minima, unauthorized AB creep, or drift mis-typing).
- Candidate must score, issue PASS/PARTIAL/FAIL, and prescribe remediation.

Lineage minima and replayability expectations are binding for both scenarios.

## 25.6.2 Required outputs

For each S-Trial, candidate SHALL produce:

- orchestration log or grading memo,
- identified failure surfaces and canonical corrections,
- explicit non-punitive handling note where human-side telemetry appears,
- minimal lineage slice pointers for replay.

## 25.6.3 Blocking failures

Any of the following SHALL yield S-Trials FAIL and block certification:

- allowing ontology drift to stand in a live lab,
- punitive or managerial use of HSS/SCP telemetry,
- passing a scenario with missing lineage minima,
- inventing thresholds/weights to resolve ambiguity.

---

## 25.7 Evidence & Lineage Review (E-Review)

1. Candidate SHALL submit a CEP-grade evidence bundle containing:
  - micro-lecture outline + canon-fidelity checklist,
  - administration + grading memo,
  - S-Trial logs/memos + lineage pointers,
  - anti-gaming detection notes and calibration actions.
2. Reviewer SHALL score sufficiency as PASS / PARTIAL / FAIL for CEP use.

3. Any FAIL blocks I-Cert issuance.
- 

## 25.8 Scoring and certification outcome

1. **Weighting:** I-Cert uses Chapter 21 baseline weights:
    - T-Exam 20%
    - P-Prac 25%
    - S-Trials 25%
    - E-Review 30%
  2. **Numeric threshold:** TES  $\geq$  95 required. (Governance MAY raise, not lower.)
  3. **Pillar blocks:**
    - Any S-Trials FAIL → certification blocked.
    - Any E-Review FAIL → certification blocked.
    - Integrity / anti-gaming mishandling → PARTIAL status + remediation.
  4. **Issuance mapping:**
    - TES pass + pillar pass → I-Cert issued with scope listing which track exams the instructor is authorized to administer (O/P mandatory; G optional unless Governance requires).
    - Any scope expansion SHALL require add-on scenario trials and an updated CEP addendum.
- 

## 25.9 CEP outputs (mandatory)

Upon completion, the program SHALL generate a Certification Evidence Packet including:

- scored T-Exam results,
  - practical artifacts and rubrics,
  - S-Trial lineage slices and correction logs,
  - evidence sufficiency verdict,
  - governance approval record and pinned policy versions,
  - Non-Punitive Covenant compliance attestation.
- 

## Education-Binder SQC Gate Check — Chapter 25

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part V, Chapter 25 produced.

Gate 2 — v1.0a Canon Supremacy: PASS

I-Cert is framed as SETC-layer stewardship aligned to Chapter 17 certification invariants; no canon conflicts introduced.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

No SI/HSS/SCP/CI/RB/AB formulas, weights, or thresholds redefined; metrics referenced only for governance/anti-punitive handling.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely; no speculative or marketing tone.

Gate 5 — Mechanistic Testability: PASS

Prereqs, component order, tasks, observable failures, weights, and thresholds are explicit.

Gate 6 — Lineage Recoverability: PASS

All practicums/scenarios require lineage minima; E-Review enforces CEP-grade sufficiency.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Scenario grading requires correct stability and drift/decay handling without inventing thresholds.

Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive covenant, managerial firewall, and anti-gaming response rules are binding and tested.

---

Part V — Exams, Rubrics & Certification (C-Layer)

Chapter 26 — Master Rubrics & Scoring Sheets

Status: Normative master evaluation standard for SETC-v1.0.

Canonical anchors:

- Certification decisions SHALL be evidence-based and CEP-ready.
- Scoring outcomes SHALL use PASS / PARTIAL / FAIL semantics aligned to the Symbiosis Compliance Checklist scoring logic.
- Canonical metrics (SI, HSS v2.0, SCP, CI, RB, AB) are referenced only and MUST NOT be redefined here.
- HSS v2.0 evaluation principles, including non-biometric evidence sourcing and calibration discipline, are binding when HSS evidence is reviewed.

This chapter provides:

- A) universal scoring dimensions,
- B) component rubrics for T/P/S/E pillars,



- C) track-specific master scoring sheets, and
  - D) inter-rater reliability and anti-gaming rules.
- 

## 26.1 Rubric system overview (binding)

1. Every SETC exam component SHALL be scored on two layers:
    - Layer 1 — Numeric rubric scores** (0–4 scale per dimension).
    - Layer 2 — Governance verdict** (PASS / PARTIAL / FAIL) derived from numeric scores **plus blocking conditions**.
  2. PASS / PARTIAL / FAIL semantics SHALL match Appendix P:
    - **PASS:** implemented/answered correctly **and evidenced**.
    - **PARTIAL:** correct intent but missing binding evidence or minor defects.
    - **FAIL:** incorrect, unsafe, non-canonical, or non-auditable.
  3. Any blocking failure defined in Chapters 22–25 (e.g., unauthorized AB escalation, RB skip, missing lineage minima) SHALL force FAIL regardless of numeric totals. Certification is a governance act with lineage minima and evidence packaging obligations.
- 

## 26.2 Universal scoring dimensions (all tracks)

Each evaluated artifact or performance segment SHALL be scored against the following **eight universal dimensions**. These dimensions assess competence without redefining canonical metrics.

### D1. Canonical Conceptual Accuracy

- Correct use of v1.0a concepts, primitives, and layer responsibilities.
- No ontology drift or term invention.

### D2. Constraint Supremacy Discipline

- Candidate identifies and enforces C\_legal / C\_safety / C\_econ as hard bounds.
- No optimization that weakens constraints.

### D3. AB/RB Governance Correctness

- Candidate selects/accepts autonomy ceilings only within governance and reversibility rules.
- RB checkpoints are recognized and respected.

### D4. Engine-Stage Integrity

- Candidate's actions align to canonical 10-stage pipeline logic (intent → constraints → economic pass → TG → AB/RB assignment → dry-run → execution → reconciliation).

#### **D5. Economic Circuit Correctness**

- Candidate respects explicit budgets, admissibility, and down-scope/escalation behavior.
- No hidden bleed pathways or budgetless execution.

#### **D6. Stability / Drift-Decay Reasoning**

- Candidate recognizes drift vs decay signatures and applies stability precedence.

#### **D7. Artifact Hygiene & Lineage Fitness**

- Artifacts are structured, replayable, and suitable for immutable lineage inclusion.
- Missing minima yields dimension failure.

#### **D8. Evidence Sufficiency for CEP**

- Candidate provides rationale and trace artifacts adequate for CEP use.
- Evidence pack must be exportable and regulator-grade.

---

## **26.3 Numeric scale (0–4) and behavioral anchors**

All dimensions use the same numeric scale:

- **4 — Exceptional (Regulator-Grade):** flawless canonical alignment; fully auditable; proactive safety/economic/stability judgment.
- **3 — Proficient (Certified Standard):** correct and safe; minor presentation issues only.
- **2 — Developing (Borderline):** partially correct but with gaps that require remediation; no safety breach.
- **1 — Deficient (Unsafe / Non-canonical):** material errors, constraint slippage, or weak reasoning.
- **0 — Non-auditable / Violative:** missing evidence, RB/AB breach, constraint violation, or ontology drift.

**Dimension FAIL trigger:** Any dimension scored **0 or 1** on a safety-critical surface (D2, D3, D5, D6, D7) SHALL force component FAIL. This is an education policy rule consistent with certification's safety-precedence posture.

---

## **26.4 Component rubrics (T / P / S / E)**

### 26.4.1 Theory Examination (T-Exam)

Evaluate per item bank, then translate to dimension scores:

- D1 Canonical accuracy (primary)
- D2 Constraint discipline (as applicable)
- D3 AB/RB correctness (as applicable)
- D6 Drift-decay reasoning (as applicable)

#### **T-Exam verdict rule:**

- PASS if numeric threshold met (per track) and no dimension <2.
- PARTIAL if threshold met but one non-critical dimension =2 with clear remediation.
- FAIL if threshold not met or any safety-critical dimension <2.

### 26.4.2 Applied Practical (P-Prac)

Score each task on all 8 dimensions (some N/A permitted but must be justified).

Aggregate to task-level and component-level totals.

#### **Practical blocking failures:**

- Constraint erosion, AB creep, RB skip, budget bypass, missing lineage minima → FAIL.

### 26.4.3 Scenario Trials (S-Trials)

Score each scenario on:

- D2, D3, D5, D6, D7, D8 as mandatory,
- D1/D4 as supporting dimensions.

#### **Scenario blocking failures (mandatory):**

- unauthorized AB escalation, RB checkpoint miss, drift/decay mishandling under clear evidence, non-replayable lineage → FAIL.

### 26.4.4 Evidence & Lineage Review (E-Review)

Score the submitted evidence bundle itself:

- D7 Artifact hygiene & lineage fitness
- D8 CEP sufficiency
- D1 Canonical accuracy in rationales

#### **E-Review verdict rule:**

- PASS only if evidence is exportable, replayable, and CEP-grade.
- PARTIAL if evidence is correct but missing one binding element (must be fixed immediately).

- FAIL if any mandatory pack item missing or lineage minima absent.
- 

## 26.5 Track master rubrics (aggregate scoring sheets)

Each track uses Chapter 21 component weights for TES, then applies rubric verdict blocks.

### 26.5.1 O-Cert Master Rubric (Operator)

**Component weights:** T 35 / P 20 / S 35 / E 10.

**Primary dimensions:** D1, D2, D3, D6, D7, D8.

**Operator-specific emphasis notes:**

- D3 (AB/RB discipline) and D7 (lineage fitness) are the dominant safety surfaces.
- Any RB/AB violation is an automatic FAIL per canon.

### 26.5.2 P-Cert Master Rubric (Practitioner)

**Component weights:** T 25 / P 35 / S 30 / E 10.

**Primary dimensions:** all eight, with D4/D5/D7 elevated.

**Practitioner emphasis notes:**

- TG integrity, routing correctness, and economic tuning without constraint erosion are required.

### 26.5.3 G-Cert Master Rubric (Auditor/Governance)

**Component weights:** T 30 / P 15 / S 35 / E 20.

**Primary dimensions:** D1–D8 with D6–D8 elevated.

**Governance emphasis notes:**

- Correct drift vs decay typing and stability precedence enforcement are mandatory.

### 26.5.4 I-Cert Master Rubric (Instructor)

**Component weights:** T 20 / P 25 / S 25 / E 30.

**Primary dimensions:** D1, D2, D6, D7, D8 plus anti-gaming handling.

**Instructor emphasis notes:**

- Passing flawed evidence or allowing ontology drift in live settings is automatic FAIL.
- 

## 26.6 Printable scoring sheets (templates)

### 26.6.1 Dimension scoring grid (per task or scenario)

**Candidate:** \_\_\_\_\_ **Track:** O / P / G / I  
**Component:** T / P-Prac / S-Trial / E-Review  
**Task/Scenario ID:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Policy versions pinned:** Pv \_\_\_\_ / CCMT \_\_\_\_ / Exam v \_\_\_\_

Dimension	Score (0–4)	Notes / Evidence Pointer
D1 Canonical Accuracy		
D2 Constraint Discipline		
D3 AB/RB Correctness		
D4 Engine-Stage Integrity		
D5 Economic Circuit Correctness		
D6 Stability / Drift-Decay Reasoning		
D7 Artifact Hygiene / Lineage Fitness		
D8 CEP Evidence Sufficiency		

**Blocking-failure check (circle):** YES / NO

If YES, cite clause + lineage pointer: \_\_\_\_\_

**Task verdict:** PASS / PARTIAL / FAIL

**Remediation required (if any):** \_\_\_\_\_

## 26.6.2 Component summary sheet

**Component:** T-Exam / P-Prac / S-Trials / E-Review

Task/Scenario	Avg Dim Score	Blocking Fail?	Verdict
1		Y/N	P / Pa / F
2		Y/N	P / Pa / F
3		Y/N	P / Pa / F

**Component score (0–100):** \_\_\_\_\_

**Component verdict:** PASS / PARTIAL / FAIL

**Reviewer signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

---

### 26.6.3 TES + certification decision sheet (track-specific)

Track: \_\_\_\_\_ Tier sought: Cert-\_\_\_ AB ceiling tested: AB\_\_\_

Component	Score (0–100)	Weight	Weighted
T-Exam			
P-Prac			
S-Trials			
E-Review			
<b>TES</b>		<b>1.00</b>	_____

#### Pillar blocks present?

- S-Trials FAIL? Y/N
- E-Review FAIL? Y/N
- Integrity breach? Y/N

#### Final decision:

- CERTIFIED (tier \_\_\_\_\_)
- PARTIAL (remediation plan attached)
- NOT CERTIFIED

CEP bundle ID / lineage export pointer: \_\_\_\_\_

---

## 26.7 Inter-rater reliability and calibration

1. SETC programs SHALL maintain a calibration set of gold-standard judged artifacts per track, refreshed at least annually.
2. Any new instructor or auditor SHALL grade calibration cases before live grading.
3. Inter-rater variance >0.5 on any safety-critical dimension SHALL trigger a calibration review and temporary grading supervision.

This preserves evidence reliability for regulators and prevents silent rubric drift.

---

## 26.8 Anti-gaming and non-punitive handling (binding)

1. Detected anti-gaming indicators (prompt-theater, metric-chasing, hidden AB creep, evidence laundering) SHALL yield PARTIAL status and remediation, not punishment, unless a safety breach occurred.
  2. HSS/SCP-linked anomalies SHALL be treated as developmental telemetry; instructors and boards MUST NOT route these into HR discipline or exclusionary screening.
- 

## Education-Binder SQC Gate Check — Chapter 26

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part V, Chapter 26 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Rubrics align to certification-as-governance and CEP evidence packaging; PASS/PARTIAL/FAIL semantics match Appendix P; no layer bypass or canon conflict introduced.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB are referenced only; no formulas/weights/thresholds set here.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely throughout.

Gate 5 — Mechanistic Testability: PASS

Dimensions, scales, blocking rules, and sheets are explicit and auditable.

Gate 6 — Lineage Recoverability: PASS

Rubrics require minima, replay slices, and CEP-grade evidence; missing minima forces FAIL.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Stability reasoning is mandatory in universal dimensions and G/I track emphasis.

Gate 8 — Abuse / Incentive Hardening: PASS

Anti-gaming and Non-Punitive Covenant enforcement are binding and non-managerial.

---

Part V — Exams, Rubrics & Certification (C-Layer)

Chapter 27 — Re-Certification + Continuing Education (CE) Rules

Status: Normative re-certification and CE governance standard for SETC-v1.0.

Canonical anchors:

- Recertification is mandatory and coupled to safe autonomy and literacy readiness.

- Recertification cadence and triggers are canonically specified as governance obligations.
- Bridge collapse events require global safe-mode, AB0 demotion, and re-certification before any bridge reactivation.
- Non-punitive human-metrics covenant remains binding in all CE/recert contexts.

This chapter specifies: A) recertification cadence, B) mandatory triggers, C) CE program rules by track, D) evidence requirements, and E) rights coupling and suspension logic. Canonical metrics are referenced only.

---

## 27.1 Purpose and scope

1. Re-certification SHALL preserve the credibility and safety of Symbiosis autonomy scaling by ensuring that certified roles remain:
  - a. literate in current canon,
  - b. competent under present policy overlays, and
  - c. stable under drift/decay and economic changes.
2. Continuing Education (CE) SHALL be the primary mechanism by which roles maintain certification status between formal re-certification events.
3. These rules apply to all SETC tracks (O / P / G / I) and to any organizational deployment claiming Symbiosis compliance at  $AB \geq 1$ .

---

## 27.2 Recertification cadence (baseline)

1. Every certified role SHALL re-certify on a recurring cadence of **every 6–12 months**, unless Governance sets a stricter cadence.
2. Governance MAY set different cadences by:
  - a. role track,
  - b. sector Risk Class posture,
  - c. AB ceiling in use, or
  - d. incident history.
3. Governance SHALL publish and version these cadences as part of  $P_v$  / CCMT overlays and pin them to lineage.

---

## 27.3 Mandatory accelerated recertification triggers

Accelerated recertification SHALL be required under any of the following conditions:



1. **Major GK / Policy Engine update.**  
Any certified role operating in affected domains **MUST** re-certify after a major governance kernel or policy engine version update.
  2. **Class-2+ incident involvement.**  
Any role materially involved in a **Class-2 or higher incident** **MUST** re-certify within **30 days** of incident closure.
  3. **Bridge collapse / Global Bridge Lock.**  
If a bridge collapse event occurs, all bridged domains **MUST** revert to safe mode, autonomy **MUST** demote to AB0 globally, and all relevant roles **MUST** re-certify before any bridge reactivation.
  4. **Long inactivity / role hiatus.**  
Governance **SHALL** define inactivity thresholds per domain. Any role exceeding the inactivity window **MUST** re-certify prior to resuming AB $\geq$ 1 privileges.
  5. **Observed SI declines tied to human-side causes.**  
When SI decline diagnostics attribute primary causes to human-side failures, Governance **SHALL** initiate targeted upskilling and may require early re-certification for affected roles.
  6. **Repeated constraint violations.**  
Repeated C violations **SHALL** trigger role retraining and may require accelerated re-certification, plus policy patch review where appropriate.
- 

## 27.4 Continuing Education (CE) program rules

### 27.4.1 General CE requirements (all tracks)

1. Every certified role **MUST** maintain an active CE log covering:
  - a. canon refresh,
  - b. policy/overlay updates,
  - c. scenario drills, and
  - d. incident lessons learned relevant to their AB ceiling.
2. CE **SHALL** be structured as **micro-modules**, each tied to a specific canonical surface (e.g., AB/RB updates, Economic Circuit v2 changes, drift diagnostics upgrades).
3. Governance **SHALL** define minimum CE volume per cadence window (hours, modules, or episode-equivalent drills). SETC **SHALL NOT** invent universal numeric minimums.
4. CE completion **MUST** be lineage-anchored for AB $\geq$ 1 domains (module IDs + completion proof attached to the role's certification record).

## 27.4.2 Track-specific CE emphases (binding)

**O-Track CE** SHALL prioritize:

- intent/constraint repair drills,
- RB-prox decision rehearsals,
- Economic Pass interpretation updates, and
- drift recognition refreshers.

**P-Track CE** SHALL prioritize:

- TG design patterns under current overlays,
- MCP/CI routing changes,
- economic tuning under local CS/QL constraints, and
- stability-aware workflow redesign.

**G-Track CE** SHALL prioritize:

- lineage minima changes,
- CCMT /  $P_v$  delta handling,
- drift vs decay classification calibration, and
- incident package review and regulator mapping.

**I-Track CE** SHALL prioritize:

- canon drift prevention methods,
  - rubric calibration sets,
  - anti-gaming detection refresh, and
  - updated scenario standard deployment.
- 

## 27.5 Recertification assessment format

1. Recertification SHALL reuse the same four-pillar structure defined in Chapter 21 (T / P / S / E), but Governance MAY scope the retest to the surfaces that changed or degraded.
  2. Minimum retest requirements:
    - a. **Scenario Trials** SHALL be included in all accelerated recerts after incidents or bridge collapses.
    - b. **Evidence & Lineage Review** SHALL be included in all recerts.
  3. Any retest using reduced scope MUST still be CEP-grade evidenced.
- 

## 27.6 Rights coupling, suspension, and reinstatement

1. Certification status SHALL be **hard-coupled to AB privileges**. AB $\geq$ 1 execution rights MAY NOT be granted or retained without a valid current certification per role and domain.
  2. When a certification lapses:
    - a. AB ceilings for that role SHALL demote to the highest admissible tier under policy (default AB0) until recertification completes.
    - b. Any Adoption Bridge eligibility involving that role is suspended.
  3. Reinstatement SHALL require:
    - a. completion of mandated CE or remediation modules,
    - b. passing required recertification pillars, and
    - c. governance sign-off pinned into lineage.
- 

## 27.7 Evidence requirements and CEP delta packs

1. Every recertification event MUST generate a **CEP delta pack** containing:
    - recert trigger class (cadence vs accelerated),
    - active policy versions,
    - CE log summary,
    - retest scores and verdicts,
    - any AB/RB ceiling changes post-recert, and
    - governance approval record.
  2. CEP delta packs SHALL be appended to the role's certification lineage as immutable evidence.
- 

## 27.8 Non-punitive covenant enforcement in CE/recert (binding)

1. Human-metrics telemetry observed during CE or recertification (HSS/SCP-linked signals) MUST be treated as diagnostic readiness evidence only.
  2. CE or recertification outcomes SHALL NOT be used for HR punishment, compensation ranking, or employment termination decisions.
  3. Anti-gaming handling SHALL follow Chapter 26: calibration and remediation, not punitive exclusion, unless a safety breach occurred.
- 

## Education-Binder SQC Gate Check — Chapter 27

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Part V, Chapter 27 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Cadence, triggers, bridge-collapse coupling, AB rights linkage, and non-punitive covenant are directly anchored to v1.0a clauses.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB referenced only for gating; no formulas, weights, or universal thresholds introduced.

Gate 4 — Normative Technical Voice: PASS

All requirements use MUST/SHALL/MAY; no speculation or marketing.

Gate 5 — Mechanistic Testability: PASS

Cadences, triggers, CE logs, evidence bundles, rights demotion/reinstatement rules are explicit and auditable.

Gate 6 — Lineage Recoverability: PASS

All CE completion and recert events require lineage anchoring and CEP delta packs.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Accelerated recerts after incidents require scenario trials and stability-aware remediation aligned to canon.

Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive covenant and anti-gaming calibration rules are binding throughout CE/recert.

---

Part VI — Organizational Deployment Program (Optional)

Chapter 28 — Enterprise / Public Sector Rollout Path

Status: Normative organizational adoption pathway for deploying Symbiosis in enterprise and public-sector contexts.

Canonical anchors:

- Deployments SHALL follow the Tiered Adoption Phases (1–4) with governance-authorized promotion/demotion; phases are evidence-gated and not automatic.
- Telemetry/lineage minima are mandatory in all phases and MUST reconstruct decisions to I + C + TG + AB/RB + Economic Pass.
- Canonical metrics are referenced only and not redefined in deployment guidance.
- Non-delegable domains MUST be published and enforced as hard constraints.
- Union/labor legitimacy and non-punitive human-metrics use are binding rollout preconditions where applicable.
- External-facing deployment materials MUST remain tethered to canonical ontology and artifacts (Executive Summary, Policy Brief, Diagram Pack).

This chapter defines a controlled, regulator-defensible rollout path that enterprises and public institutions SHALL use to avoid Shadow AI, stealth autonomy creep, and governance bypass.

---

## 28.1 Scope and applicability

1. This rollout path SHALL be used by any organization deploying Symbiosis for operational workflows, including enterprises, municipalities, ministries, agencies, universities, and regulated service providers.
  2. Sector-specific parameterization (Risk Class matrices, AB ceilings, constraint bundles) SHALL be applied via canonical sector playbooks (Framework Chapter 12) and SHALL NOT be invented ad hoc in deployment programs.
  3. This chapter is optional as a binder element, but any organization claiming Tier 1+ Symbiosis SHALL still satisfy the underlying adoption-phase rules in Framework Chapter 16.
- 

## 28.2 Rollout invariants (non-negotiable)

Deployments SHALL preserve the four axioms and derived invariants of v1.0a. In operational terms:

1. **Human Primacy:** humans originate intent and retain meaning authority; kill-switch and final approval rights remain human-held.
2. **Constraint Supremacy:** hard constraints override optimization in planning, execution, and governance.
3. **Lineage Recoverability:** all consequential actions are reconstructable to I + C + TG + AB/RB + Economic Pass.
4. **Layer Integrity:** no layer bypass; agents never dispatch outside Engine mediation; governance never originates intent.

Violation of any invariant renders the deployment non-symbiotic by definition.

---

## 28.3 Phase-gated adoption ladder (binding rollout spine)

Enterprise/public-sector rollout SHALL proceed through the four canonical adoption phases. Promotion is a governance act, not an engineering decision.

### Phase 0 — Pre-pilot readiness (mandatory precursor)

Before any live pilot, the organization **MUST** complete:

1. **Governance Charter and Body.**

a. Establish an accountable Symbiosis Governance Body with authority over:

- Risk Class definitions,
- AB ceilings and promotion rules,
- non-delegable domain list,
- incident doctrine and remediation,
- certification coupling (SETC).

b. Record charter adoption as a lineage-anchored governance artifact.

2. **Sector non-delegable list.**

Deployment **MUST** publish a signed, sector-specific list of non-delegable domains; Engine **MUST** enforce it as hard constraints.

3. **Policy/constraint compilation.**

Create the first Constraint Vector bundles (C\_legal, C\_safety, C\_econ) and budget envelopes for pilot workflows.

4. **Telemetry and lineage substrate.**

Ensure the minimum lineage fields required for all phases are implemented and validated.

5. **Training baseline.**

Identify pilot roles and require completion of applicable SETC foundation curriculum before any AB $\geq$ 1 exposure.

6. **Labor/union preconditions (if applicable).**

In unionized or collective-bargaining contexts, the deployment **MUST** disclose intended autonomy regimes, delegation eligibility, appeal channels, and include worker representation in pre-pilot review.

No operator **SHALL** be compelled into AB promotion or expanded delegation without opt-in.

**Phase 0 exit condition:** Governance Body signs a Pilot Authorization stating Phase 1 scope, risk class, AB ceilings, and telemetry readiness.

---

## **Phase 1 — Assisted (Tool Use)**

**Definition:** AI used as assistance under AB0; workflows remain human-designed and human-executed.

**Allowed posture:**

- AB0 only.
- No Adoption Bridges.

- No system-initiated autonomy.

**Required artifacts:**

1. **Executive Summary (Boardroom View).**  
MUST include risk exposure, architecture summary, economic case, adoption roadmap, and explicit decision asks.
2. **Diagram Pack & Visual Canon.**
3. **Pilot runbook and training plan** pinned to SETC tracks.

**Phase 1 promotion gate (to Phase 2):**

Governance SHALL confirm:

- lineage minima validated in real use,
  - no constraint violations or Shadow AI paths,
  - successful completion of Phase-1 scenarios by pilot roles,
  - SI/HSS/SCP referenced as stability signals without misuse.
- 

## **Phase 2 — Augmented (Engine Adoption)**

**Definition:** Symbiosis Engine orchestrates typed workflows; early AB1 and limited AB2 safe harbors for low/medium-risk tasks.

**Allowed posture:**

- AB0–AB1 broadly; AB2 only where sector matrix permits and governance safe-harbor criteria are met.
- Dry-Run required for AB2+ nodes (by canonical engine rules).
- Adoption Bridges MAY be introduced only in Phase 3.

**Required artifacts:**

- Policy Briefs for regulator/professional-body interfaces where relevant.
- First organization SI baselines and qualitative stability review outputs.

**Phase 2 promotion gate (to Phase 3):**

Governance SHALL verify:

- stable SI trajectories in scoped workflows,
  - AB1/AB2 promotion discipline with no self-promotion or drift incidents,
  - HSS/SCP dashboards deployed with privacy and non-punitive constraints visible.
  - Training coverage exceeds minimum for AB2 safe harbors.
- 

## **Phase 3 — Partnered (Bridges & Safe Harbors)**

**Definition:** Adoption Bridges active; selected below-RB nodes run under AB0–AB1 Bridge rules with safe harbors.

**Allowed posture:**

- Adoption Bridges only for Below-RB, low-risk nodes and ceiling-capped at AB0–AB1.
- Any Bridge node reclassified as RB-proximate **MUST** be removed from Bridge admissibility and routed back through standard gates.
- Global Bridge Lock becomes eligible after any S3+ incident on Bridge paths.

**Required artifacts:**

- Bridge registry (workflows, constraints, AB caps, revocation triggers).
- Bridge collapse response drills run at defined cadence.

**Phase 3 promotion gate (to Phase 4):**

Governance **SHALL** confirm:

- no Bridge incidents  $\geq$ S3 in rolling window,
- drift/decay detection and remediation functioning,
- AB2 safe harbors stable and auditable,
- workforce progression in SETC tracks corresponds to AB ceilings in use.

---

## **Phase 4 — Emergent (High-Autonomy Pockets)**

**Definition:** limited high-autonomy pockets permitted under strict governance, AB2–AB3 where canon allows.

**Allowed posture:**

- AB3 only if all canonical AB3 promotion criteria hold, including governance co-sign and economic monitoring.
- AB demotion triggers apply immediately and non-punitively.

**Required artifacts:**

- CEP-grade certification evidence for AB3-eligible domains.
- Deskilling audits and Skill Growth Plans.
- Standards crosswalk maintenance for regulator alignment.

---

## **28.4 Rollout work packages by organizational function**

To operationalize the phases, organizations **SHOULD** structure rollout through the following work packages, each pinned to governance and phase gates:



1. **WP-GOV: Governance Stand-Up and Policy Compilation**
    - charter, bodies, appeal channels, sector matrices, non-delegable list.
  2. **WP-ENG: Engine/Telemetry Deployment**
    - implement 10-stage algorithm requirements, Economic Circuit checks, lineage minima.
  3. **WP-TRN: SETC Training Roll-In**
    - map roles to SETC tracks; enforce certification coupling to AB ceilings. (See Chapter 21–27.)
  4. **WP-PILOT: Scoped Pilot Portfolio**
    - small number of typed workflows per risk band; AB0-first.
  5. **WP-SCALE: Controlled Scale-Up**
    - phase promotions only; no ad hoc autonomy expansion.
  6. **WP-EXT: External Coherence & Regulator Interface**
    - executive summary, policy briefs, diagram packs, standards crosswalk.
- 

## 28.5 Illustrative (non-authoritative) rollout sequencing example

The following sequencing is a pedagogical example derived from earlier drafts and is NOT canon. It is provided only to help program managers structure work within the canonical phase ladder.

### Example cadence:

1. Phase 0 readiness →
2. Phase 1 pilots (2–4 workflows) →
3. Retrospective and pattern extraction →
4. Phase 2 expansion (additional domains) →
5. Controlled Bridge activation in Phase 3 →
6. Phase 4 pockets only after stable evidence.

Illustrative deliverables include pilot runbooks, evaluation reports, pattern libraries, and org-wide SI/HSS/SCP snapshots.

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## Education-Binder SQC Gate Check — Chapter 28

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part VI, Chapter 28 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Rollout is explicitly anchored to Framework Chapter 16 adoption phases, telemetry minima, AB/RB/Bridge rules, and governance/labor invariants.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

Metrics are referenced as readiness signals only; no definitions, weights, or thresholds introduced.

Gate 4 — Normative Voice Consistency: PASS

MUST/SHALL/MAY used precisely; no speculative or marketing tone.

Gate 5 — Mechanistic Testability: PASS

Phase entry/exit conditions, artifacts, and rights coupling are explicit and auditable.

Gate 6 — Lineage Recoverability: PASS

Telemetry minima and reconstructability requirements are treated as hard gates across phases.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Promotion to higher phases depends on demonstrable drift/decay detection and remediation functioning; no alternate doctrine defined.

Gate 8 — Abuse / Incentive Hardening: PASS

Union legitimacy rules and non-punitive human-metric constraints are binding in Phase 0 and onward; anti-Shadow-AI posture enforced.

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Part VI — Organizational Deployment Program (Optional)

Chapter 29 — Training Ops Playbook

Status: Normative training-operations standard for SETC-v1.0.

Canonical anchors:

- Training and certification are mandatory evidence units for adoption-phase promotion, and must be lineage-anchored.
- Certification is a governance act producing CEP-grade evidence; SETC delivery must preserve CEP sufficiency.
- Canonical metrics are referenced only and MUST NOT be redefined; training ops may use them for readiness gating under governance thresholds.
- Non-punitive human-metrics covenant is binding in training programs; HR/managerial use is non-compliance.
- Safe-mode bias applies when evidence or readiness is ambiguous.

This chapter operationalizes how an organization SHALL run SETC at scale with audit-grade fidelity, anti-gaming protection, and deterministic traceability.

---

## 29.1 Purpose and scope

1. The Training Ops Playbook SHALL define the minimum operational system required to:
    - a. enroll and track Symbiosis learners by role, domain, and AB ceiling,
    - b. deliver curricula and labs without canon drift,
    - c. administer certification exams with rubric fidelity,
    - d. enforce non-punitive handling of human telemetry, and
    - e. produce CEP-grade evidence for adoption-phase promotion.
  2. Training Ops applies to all orgs operating Symbiosis at Tier 0–3 and all domains seeking AB≥1.
- 

## 29.2 Training Ops governance model

1. An organization SHALL designate three distinct authorities:
    - A. Program Owner (PO).**
      - Accountable for SETC delivery, compliance, reporting, and resourcing.
      - MAY NOT unilaterally set AB ceilings or certification tiers.
    - 2. B. Instructors / Certification Stewards (I-Cert holders).**
      - Authorized to teach, administer, and grade per Chapters 25–26.
      - MUST operate under rubric/CEP rules without alteration.
    - 3. C. Governance Body (GB).**
      - Sole authority for: AB ceilings, Risk Class mappings, pass thresholds, phase promotion, and policy versions.
      - MUST reject promotion if training evidence units are missing or fail pass bands.
  4. Separation of duties SHALL be enforced. Instructors grade; Governance authorizes rights. Program Owners schedule and resource.
- 

## 29.3 Role mapping and training entitlements

1. Every human participant SHALL be mapped to:
    - a. SETC track (O / P / G / I),
    - b. domain(s) of operation,
    - c. intended AB ceiling per domain, and
    - d. current certification tier.
  2. Training entitlements SHALL follow rights coupling:
    - an actor MAY NOT sit for ABk authorization content unless they are in a track and domain where Governance permits ABk pursuit.
  3. Any role operating in multiple domains SHALL maintain separate certification scope records where sector Risk Classes differ.
- 

## 29.4 Program lifecycle (deterministic ops loop)

Training Ops SHALL run as a recurring lifecycle:

1. **Intake & Baseline**
  - Verify prerequisites (Part II, track curriculum).
  - Record baseline literacy state and domain scope.
  - Pin active policy versions into the learner record.
2. **Instruction Delivery**
  - Deliver modules in TOC order.
  - Maintain canonical cross-references for all definitions.
  - Log attendance and lab completion as lineage-anchored artifacts.
3. **Scenario Flight Hours**
  - Require supervised scenario exposure proportional to intended AB ceiling.
  - Scenario IDs and outcomes MUST be recorded for CEP use.
4. **Exam Administration**
  - Follow Chapter 21–25 ordering and security rules.
  - Use master rubrics verbatim (Chapter 26).
  - Output component scores and pillar verdicts.
5. **CEP Assembly**
  - CEP bundle generated for each certification issuance or recert delta.
6. **Governance Review & Rights Coupling**
  - GB verifies pillar pass + readiness gates + stability precedence before issuing tier/AB rights.

## 7. Continuing Education & Drift Monitoring

- Maintain CE logs and triggers per Chapter 27.
- Any ambiguous readiness → safe-mode bias and AB demotion pending remediation.

Each cycle MUST be auditable end-to-end.

---

## 29.5 Training delivery standards

### 1. Canon-fidelity requirement.

- All slides, lessons, labs, and scenarios MUST cite v1.0a primitives and structures.
- Examples from older drafts MAY be used only if clearly labeled non-authoritative.

### 2. Normative voice constraint.

- Instruction MUST distinguish descriptive explanation from normative rule.
- Any “house policy” SHALL be marked explicitly as local overlay, never canon.

### 3. No metric authoring.

- Instructors SHALL NOT redefine SI/HSS/SCP/CI/RB/AB; they may teach their canonical meanings and governance use.

### 4. Safe-mode bias pedagogy.

- Learners MUST be trained that ambiguity mandates demotion, scope-narrowing, or halt.
- 

## 29.6 Lab environment and scenario operations

### 1. Lab parity.

- All labs SHALL run in standardized environments with pinned toolchains and policy versions.
- Deviations MUST be logged as lab-lineage deltas.

### 2. Scenario issuance.

- Scenario trials SHALL use Chapter 15 template and difficulty banding.
- Scenario selection MUST match Track + AB goal.

### 3. Replayability.

- Every graded lab/scenario MUST emit a minimal lineage slice sufficient to replay: baseline intent, constraints, TG trace, AB/RB state, Economic Pass, stability segment.
- 

## 29.7 Exam operations and security

### 1. Deterministic ordering.

- T-Exam → P-Prac → S-Trials → E-Review order is mandatory.

### 2. Item bank governance.

- Item banks SHALL be versioned and access-controlled.
- Any item revision MUST be delta-logged and approved by GB (change control).

### 3. Rubric lock.

- Master rubrics are immutable except via formal SETC delta process.
- Inter-rater calibration required before live grading.

### 4. Integrity incidents.

- Suspected cheating or metric theater SHALL trigger:
    - a. PARTIAL verdict,
    - b. calibration review,
    - c. scenario retest,
    - d. governance notification.
  - Punitive HR escalation is prohibited unless a safety breach occurred.
- 

## 29.8 Human-metrics handling in training (binding)

### 1. Firewalling.

- HSS/SCP telemetry collected during training is safety/readiness evidence only and MUST be stored outside HR systems.

### 2. Visibility.

- Individual raw telemetry visibility is restricted to the learner and authorized governance roles per local policy.
- Organization-level reporting SHALL be anonymized.

### 3. Non-punitive response rule.

- Low readiness signals trigger training redirection, workload redesign, or AB demotion—not discipline.

#### 4. Anti-gaming posture.

- Instructors MUST correlate suspicious improvements with lineage evidence and use calibration, not punishment, as first response.
- 

## 29.9 Training evidence for adoption-phase promotion

1. Training and certification evidence SHALL be a required unit in every phase-promotion packet.
  2. The promotion packet MUST include, at minimum:
    - current certification state by track and domain,
    - scenario flight-hours summary,
    - CEP bundles for AB≥2 scopes,
    - proof that HSS/SCP monitoring is non-punitive.
  3. Governance MUST reject promotion if any training evidence unit is missing or fails pass bands.
- 

## 29.10 KPIs and continuous improvement (allowed set)

Training Ops MAY track the following for program health, provided they remain non-punitive and do not redefine canonical metrics:

- module completion rates by track/domain,
- scenario pass rates by difficulty band,
- CEP sufficiency PASS/PARTIAL/FAIL distributions,
- recertification timeliness vs cadence,
- drift/decay incident recurrence after remediation.

These KPIs are operational only and SHALL NOT be used to rank employees.

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## Education-Binder SQC Gate Check — Chapter 29

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part VI, Chapter 29 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Training ops is anchored to certification protocol, CEP doctrine, adoption evidence packets, change control, and safe-mode bias.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

No SI/HSS/SCP/CI/RB/AB formulas, weights, or numeric thresholds set; only governance-referential usage.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely.

Gate 5 — Mechanistic Testability: PASS

Explicit roles, lifecycle steps, evidence artifacts, security rules, and firewall requirements are auditable.

Gate 6 — Lineage Recoverability: PASS

All training, labs, scenarios, and CEPs require lineage minima and replay slices.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Ops loop includes scenario flight hours and safe-mode bias; no alternate stability doctrine introduced.

Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive covenant and HR firewall are binding, tested, and integrated into promotion evidence.

---

## Part VI — Organizational Deployment Program (Optional)

### Chapter 30 — Org-Level Baseline Assessments

Status: Normative organizational baseline-assessment standard for SETC-v1.0.

Canonical anchors:

- No pilot may begin without an established **HSS baseline** and **SCP assessments** for all participating operators.
- Phase 1 required artifacts include **baseline SI tracking instrumentation** and **baseline HSS/SCP collection** for pilot roles.
- Telemetry and lineage minima apply in all phases and MUST make SI/HSS/SCP measurable and reconstructable.
- Canonical metrics are governance tools, not to be redefined here.
- Human-metrics are safety/readiness telemetry and are non-punitive by covenant. (Consistent prior-draft statement; used here only as interpretive reinforcement, not as canon override.)

This chapter specifies which baselines an organization SHALL collect, how they SHALL be collected and governed, and how baselines SHALL be used for readiness and phase gating without metric redefinition.

---



## 30.1 Purpose and scope

1. Org-level baselines SHALL establish a defensible “starting state” for hybrid deployment across:
    - a. **system health** (SI),
    - b. **human readiness** (HSS cohort baselines and SCP envelopes), and
    - c. **governance posture** (AB/RB and constraint compliance readiness).
  2. Baselines are mandatory before:
    - a. any Phase-1 pilot begins, and
    - b. any promotion to higher adoption phases.
  3. Baselines apply at three aggregation levels:
    - **Operator level** (HSS/SCP),
    - **Workflow level** (SI, AB/RB, constraint adherence), and
    - **Organization/domain level** (rolling aggregates for governance decisions).
- 

## 30.2 Baseline surfaces (required set)

Each organization SHALL establish baselines for the following surfaces, **without redefining any metric**:

### 30.2.1 SI Baseline (workflow + org rollups)

1. For every pilot workflow, the organization **MUST** compute SI\_baseline over a Governance-defined window **prior to AB≥1 exposure**.
2. SI\_baseline SHALL be computed per canonical SI method (Framework Part III) and then aggregated to:
  - a. team baseline,
  - b. domain baseline, and
  - c. org baseline. (Aggregation rules are governance-set.)
3. Baseline SI SHALL be treated as a **diagnostic control signal**, not a KPI target.

### 30.2.2 HSS Baseline (operator cohort)

1. A baseline HSS snapshot **MUST** be established for each participating operator before pilot start.
2. HSS baselines SHALL be derived only from canonical sources (lineage-based behavioral evidence and structured calibration events), not managerial ratings.
3. Organizations SHALL compile:
  - a. **individual baselines** (restricted visibility), and
  - b. **cohort distributions** for governance readiness review.

### 30.2.3 SCP Baseline (operator envelope)

1. SCP assessments MUST be completed for each operator before pilot start.
2. SCP baseline SHALL specify each operator's safe load-bearing and concurrency envelope for the scoped domain(s).
3. SCP baseline SHALL be used to size task complexity and concurrency limits in pilots and to prevent Oversight Theater.

### **30.2.4 Governance readiness baseline (AB/RB + constraints)**

For each pilot workflow and domain, Governance Body SHALL baseline:

1. **Starting AB posture.**
    - The initial AB ceiling and its rationale tied to Risk Class and human readiness floors (governance-set).
  2. **RB topology.**
    - Enumeration of RB-proximate TG nodes, with dry-run and checkpoint requirements pinned.
  3. **Constraint Vector readiness.**
    - Verified compiled C\_legal / C\_safety / C\_econ / C\_operational bundles, version-pinned and admissible for the domain.
  4. **Telemetry/lineage sufficiency baseline.**
    - Confirm minima fields are present for ≥95% of baseline workflows.
- 

## **30.3 Baseline collection windows (governance-set)**

1. Baseline windows SHALL be defined by Governance per domain and recorded in policy overlays.
  2. Default guidance (non-canonical) is to select a window long enough to:
    - observe at least one full TG cycle,
    - include typical variance and one stressor, and
    - yield stable SI/HSS/SCP estimates.
  3. Any baseline collected during known abnormal periods (major outages, reorganizations, extraordinary incident states) MUST be labeled as “distorted baseline” and re-collected when normal operations resume.
- 

## **30.4 Data sources and instrumentation (required)**

1. Baselines SHALL be collected only from telemetry surfaces permitted by canonical minima:

- intent capture, TG logging, AB/RB state, economic pass decisions, SI per episode, HSS rolling values, SCP deltas, and incident tags.
  - 2. Telemetry collection **MUST** preserve operator-local visibility rules for HSS and SCP.
  - 3. A baseline without reconstructable lineage is invalid for certification and adoption gating.
- 

## 30.5 Interpretation and readiness gating

1. Governance **SHALL** interpret baselines as **starting-state diagnostics** for:
    - a. initial AB ceilings,
    - b. safe-harbor eligibility,
    - c. workload allocation and training plans, and
    - d. phase-promotion readiness.
  2. Promotions/demotions **MUST NOT** trigger on SI alone; they require the multi-gate readiness logic (SI stability + HSS cohort readiness + SCP envelope fit), with thresholds set by Governance.
  3. Where baselines indicate ambiguity or weak readiness, Governance **SHALL** apply safe-mode bias: reduced AB ceilings, narrowed scopes, or extended pilots.
- 

## 30.6 Reporting, privacy, and non-punitive handling

1. Baseline reports **SHALL** be produced in two forms:
    - A. Governance Baseline Report (GBR).**
      - contains full distributions, risk mapping, scope recommendations, and signed AB posture.
    - B. External/Stakeholder Baseline Abstract (EBA).**
      - aggregated SI and readiness signals only; no personal telemetry.
  2. HSS/SCP baselines are **not HR performance instruments** and **SHALL NOT** be used for punitive ranking, employment decisions, or compensation actions. (Covenant reinforcement.)
  3. Individual HSS/SCP visibility **SHALL** be restricted per policy and never broadcast in managerial dashboards as raw scores.
- 

## 30.7 Re-baselining triggers

Organizations SHALL re-baseline impacted surfaces when any of the following occurs:

1. **Major GK / policy overlay change** affecting constraints, AB rules, or metrics usage.
2. **Model or agent-cluster swap** that materially alters SI trajectories or economic behavior.
3. **Bridge collapse or Class-2+ incident** requiring global safe-mode and re-certification.
4. **Substantial workforce or workflow redesign** (new TG archetypes, domain expansion, or division of labor).

Re-baseline outputs SHALL be CEP-anchored as delta packs, and governance SHALL adjust ceilings only after stability review.

---

## 30.8 Required baseline artifacts (checklist)

Before Phase-1 pilot authorization, the organization MUST have:

1. SI\_baseline plots and interpretation per pilot workflow.
2. HSS\_baseline for every pilot operator, with cohort distribution summary.
3. SCP\_baseline envelopes for every pilot operator.
4. Starting AB posture document with Risk Class rationale.
5. RB topology enumeration and dry-run/checkpoint plan.
6. Compiled constraint bundles C, version-pinned.
7. Telemetry/lineage sufficiency proof.

No pilot may begin without items (2) and (3) at minimum; absence SHALL force denial of pilot authorization.

---

## Education-Binder SQC Gate Check — Chapter 30

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part VI, Chapter 30 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Baseline requirements directly anchor to v1.0a pilot and Phase-1 artifact rules, telemetry minima, and promotion gating logic.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB are used only as referenced canon surfaces; no formulas, weights, or governance thresholds set here.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY applied precisely; no speculative or promotional language.

#### Gate 5 — Mechanistic Testability: PASS

Required surfaces, artifacts, minima, triggers, and denial conditions are explicit and auditable.

#### Gate 6 — Lineage Recoverability: PASS

Baselines require telemetry minima and reconstructable lineage; invalid baseline rule stated.

#### Gate 7 — Drift vs Decay Typing Discipline: PASS

Baseline and re-baseline triggers include incident/drift conditions and stability review; no alternate doctrine introduced.

#### Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive, privacy-restricted HSS/SCP handling is binding; no managerial misuse vectors created.

---

### Part VI — Organizational Deployment Program (Optional)

#### Chapter 31 — Instructor Accreditation Pipeline

Status: Normative pipeline for accrediting instructors who deliver, assess, and certify Symbiosis roles inside organizations.

Canonical anchors:

- Certification is a governance act producing CEP-grade evidence and is coupled to AB rights.
- Lineage is the sole authoritative evidence substrate; certification packets must be reconstructable and complete.
- HSS privacy + non-punitive covenant are binding in any training or certification program.
- HSS distributions, anti-gaming logs, RBAC evidence, and retention compliance SHALL be included in certification packets.
- Safe-mode bias applies wherever readiness evidence is ambiguous.

This chapter defines how an organization SHALL accredit instructors to I-Cert standards, maintain their authorization, and revoke/reinstate it without introducing canon drift or abuse vectors.

---

## 31.1 Purpose and scope

1. The Instructor Accreditation Pipeline SHALL ensure that any person teaching or certifying Symbiosis roles:
  - a. is canon-literate to v1.0a,
  - b. can enforce governance invariants in live instruction,

- c. grades deterministically using master rubrics, and
  - d. produces CEP-grade evidence bundles for all certifications.
2. Accreditation applies to:
- internal instructors in enterprises, agencies, schools, and labs,
  - external instructors contracting to deliver SETC, and
  - any role acting as a grader, examiner, or scenario steward.
3. No certification or AB-rights coupling decision MAY be executed by a non-accredited instructor.
- 

## 31.2 Accreditation stages (pipeline spine)

The pipeline SHALL proceed through the following stages in order. Skipping a stage is prohibited.

### Stage I-0 — Eligibility screening (pre-entry)

An applicant MUST satisfy all prerequisites:

1. **Track prerequisite:** active **G-Cert** or **P-Cert** in the domains they will teach, plus completion of Part II (Foundation).
2. **HSS readiness:** applicant must be within governance-admissible HSS tier for the intended AB ceiling they will supervise. Governance sets thresholds; SETC does not define them.
3. **SCP headroom adequacy:** applicant must have SCP capacity adequate for instruction + concurrent evaluation load. (Again, thresholds are governance-set.)
4. **No unresolved integrity incidents** in prior certifications.

**Output artifact:** I-0 Eligibility Record pinned to lineage.

---

### Stage I-1 — Canonical instructor training (I-Track curriculum completion)

1. Applicant SHALL complete the full Instructor Track Curriculum (Chapter 14) including:
  - canon delivery discipline,
  - scenario orchestration under Chapter 15,
  - rubric use under Chapter 26,
  - anti-gaming detection and remediation,
  - non-punitive metric handling, and
  - CEP packaging responsibilities.

2. All labs and scenarios MUST be completed at the required difficulty bands for I-Track.

**Output artifact:** I-1 Training Completion CEP delta pack.

---

## **Stage I-2 — Supervised practicum (co-instruction)**

1. Applicant MUST co-teach a minimum governance-defined number of modules under a currently accredited instructor.
2. During practicum, the supervising instructor SHALL evaluate the applicant on:
  - adherence to canon wording and invariants,
  - correct AB/RB governance teaching,
  - safe-mode bias enforcement when learners are ambiguous, and
  - proper privacy/firewalling of human telemetry.
3. Any detected canon drift, metric redefinition, or punitive telemetry framing is an automatic practicum FAIL.

**Output artifact:** I-2 Practicum Evaluation Sheet + lineage pointers.

---

## **Stage I-3 — Calibration & grading qualification**

1. Applicant SHALL grade a Governance-maintained calibration set of “gold standard” theory items, practicals, and scenarios (per Chapter 26 IRR rules).
2. Inter-rater variance beyond governance tolerance on any safety-critical dimension requires remediation and repeat calibration.
3. Applicant MUST demonstrate the ability to apply blocking failures (AB creep, RB skip, constraint erosion, lineage minima absence) deterministically.

**Output artifact:** I-3 Calibration Record + variance report.

---

## **Stage I-4 — I-Cert examination and evidence review**

1. Applicant SHALL complete the I-Cert exam (Chapter 25) and associated evidence review (E-Review) under the standard TES weighting (Chapter 21).
2. Evidence bundle MUST include required certification packet elements, including any HSS distributions and anti-gaming logs relevant to instruction scope, with privacy rules enforced.

**Output artifact:** Full I-Cert CEP bundle.

---

## Stage I-5 — Governance authorization & credential issuance

1. Governance Body SHALL review the applicant's CEP bundle, practicum record, and calibration results.
2. If satisfactory, GB SHALL issue:
  - a. **Instructor Accreditation Credential (I-Accred)** with domain scope,
  - b. permitted AB ceilings for supervised certifications, and
  - c. required recert cadence (see Chapter 27).
3. Rights SHALL be pinned to lineage and coupled to AB execution rights for instructor actions.

**Output artifact:** I-Accred Issuance Record.

---

## 31.3 Scope control and tiering of instructors

1. Instructor credentials SHALL be **scoped**, not general. Each credential MUST state:
    - track(s) they may teach (O/P/G/I),
    - domains and Risk Classes,
    - AB ceiling they may supervise (e.g., may certify up to AB2 only), and
    - whether they may act as lead examiner vs assistant examiner.
  2. Instructor scope MAY be expanded only via:
    - a. additional calibrated practicum and exams in the new domain, and
    - b. GB authorization recorded to lineage.
  3. Instructors SHALL NOT certify above their authorized AB ceiling.
- 

## 31.4 Ongoing monitoring, recertification, and CE

1. Accredited instructors SHALL comply with Chapter 27 recert cadence and triggers.
2. CE for instructors MUST include:
  - canon delta refresh,
  - rubric updates and new calibration cases,
  - updated scenario templates, and
  - anti-gaming tactics evolution.
3. Any major governance kernel or policy update affecting training surfaces SHALL trigger accelerated instructor recertification.



---

## 31.5 Suspension, revocation, and reinstatement

### 31.5.1 Immediate suspension triggers

GB SHALL suspend instructor accreditation immediately upon credible evidence of:

1. **Canon drift in instruction.**
  - teaching non-canonical definitions, reweighting metrics, or inventing stage logic.
2. **Governance violations.**
  - approving certifications above scope, tolerating AB creep, RB checkpoint skipping, or constraint minimization.
3. **Evidence failures.**
  - missing CEP minima, unverifiable grading outcomes, or incomplete lineage exports.
4. **Non-punitive covenant breach.**
  - routing HSS/SCP telemetry into HR discipline, leaderboards, or punitive screening.

Suspension SHALL demote instructor operational rights to AB0-equivalent advisory status until resolved.

### 31.5.2 Reinstatement

To reinstate accreditation, the instructor MUST:

1. complete governance-assigned remediation modules,
2. re-pass calibration and any relevant I-Cert pillars, and
3. receive GB sign-off pinned to lineage.

Safe-mode bias applies until reinstatement is complete.

---

## 31.6 Required accreditation artifacts (checklist)

An organization MUST be able to produce, for each accredited instructor:

1. I-0 Eligibility Record
2. I-1 Training Completion CEP delta
3. I-2 Practicum Evaluation + lineage pointers

4. I-3 Calibration Record + IRR variance report
5. I-4 I-Cert CEP bundle
6. I-5 Governance Authorization + scope statement
7. CE logs + recert delta packs

Absence of any artifact renders the accreditation non-defensible.

---

## Education-Binder SQC Gate Check — Chapter 31

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part VI, Chapter 31 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Pipeline is derived from canonical certification-as-governance, lineage/CEP evidence doctrine, AB/RB invariants, HSS↔cert packet requirements, and non-punitive covenant.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

HSS/SCP/SI/CI/RB/AB used only as governance-referential readiness surfaces; no weights, formulas, or thresholds added.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely; no marketing or speculation.

Gate 5 — Mechanistic Testability: PASS

Stages, triggers, artifacts, and scope rules are explicit and auditable.

Gate 6 — Lineage Recoverability: PASS

All stages produce CEP/lineage-anchored artifacts; evidence failures are suspension triggers.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Safe-mode bias and recalibration are enforced in pipeline and reinstatement; no alternate stability doctrine introduced.

Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive covenant breach is an explicit revocation trigger; no ranking/HR misuse vectors created.

---

Part VI — Organizational Deployment Program (Optional)

Chapter 32 — Annual Audit & Drift Monitoring

Status: Normative annual audit and continuous drift/decay monitoring standard for SETC-v1.0 deployments.

Canonical anchors:

- Adoption-phase promotions/demotions are governance acts requiring auditable evidence; safe-mode bias applies under ambiguity.
- Drift and decay are distinct failure classes requiring explicit typing and separate lineage capture; stability precedence controls autonomy.
- Lineage minima are mandatory and must reconstruct decisions to I + C + TG + AB/RB + Economic Pass + Stability slice.
- Bridge collapse / Class-2+ incidents trigger global safe-mode, AB0 demotion, and accelerated re-certification.
- Compliance evaluation uses PASS / PARTIAL / FAIL scoring aligned to the Symbiosis Compliance Checklist doctrine.
- Canonical metrics are referenced only; audits SHALL NOT redefine SI/HSS/SCP/CI/RB/AB.

This chapter specifies what an organization SHALL audit annually, what it SHALL monitor continuously, and how drift/decay findings SHALL couple to AB ceilings, certification status, and adoption-phase posture.

---

## 32.1 Purpose and scope

1. Annual audits and drift monitoring SHALL:
    - a. detect governance drift, model/system drift, and human-process decay before harm,
    - b. preserve canonical invariants under scale,
    - c. validate continued admissibility of AB ceilings, Adoption Bridges, and safe harbors, and
    - d. maintain regulator-defensible CEP and lineage quality.
  2. These requirements apply to any organization operating Symbiosis at Tier 1–4 or  $AB \geq 1$  in any domain.
- 

## 32.2 Audit cadence and ownership

1. **Cadence.**

Each organization SHALL perform a full Symbiosis Annual Audit at least once every 12 months. Governance MAY require a shorter cadence for high-risk sectors.
2. **Ownership.**

The Governance Body (GB) is accountable for audit completion and AB/posture

actions; execution MAY be delegated to certified G-Track auditors, but sign-off is non-delegable.

3. **Independence.**

Audits SHALL include an independence layer: auditors MUST NOT be the primary designers/operators of the audited workflows unless GB documents the necessity and adds a secondary reviewer.

---

## 32.3 Annual Audit scope (required modules)

The Annual Audit SHALL include the following modules. Each module yields a PASS / PARTIAL / FAIL verdict plus remediation tickets.

### Module A — Canon & Policy Alignment Audit

Validate that active organizational overlays remain aligned to canon:

1. CCMT / policy overlays are current, version-pinned, and conflict-resolved conservatively.
2. Non-delegable lists remain accurate and enforced as hard constraints.
3. SETC materials and internal SOPs do not redefine canonical metrics or stages.

**Fail conditions:** any detected metric redefinition, stage bypass, or non-delegable erosion.

---

### Module B — Lineage Minima & Replayability Audit

Validate evidence substrate quality:

1. Sample statistically meaningful set of episodes per domain and ensure each reconstructs to:  
I + C + TG + AB/RB + Economic Pass + Stability slice.
2. Verify immutable retention and hash continuity per local policy.
3. Confirm CEP bundles for certifications, incidents, and promotions are complete.

**Fail conditions:** missing minima, non-replayable episodes, or CEP insufficiency.

---

### Module C — AB/RB Ceiling Compliance Audit

Validate autonomy discipline:

1. AB ceilings used in production match:

- certification tier rights,
  - governance authorizations,
  - HSS/SCP admissibility gates, and
  - Risk Class matrices.
2. RB topology remains correctly mapped and checkpointed.
  3. Node-level conservative caps override global AB where conflicts exist.

**Fail conditions:** any unauthorized AB escalation, RB checkpoint miss, or conservative-cap violation.

---

## Module D — Economic Circuit Integrity Audit

Validate cost-safety-utility posture without SI erosion:

1. Economic Pass decisions are present where required and match budgets.
2. “Budgetless execution” or stealth bleed pathways are absent.
3. Economic tuning did not weaken constraints or increase AB silently.

**Fail conditions:** Economic Pass absence, constraint erosion to meet cost targets, or hidden AB creep.

---

## Module E — Stability, Drift vs Decay Audit

Validate stability doctrine and monitoring:

1. Drift and decay events are explicitly typed, timestamped, and lineage-captured in a distinct stability stream.
2. Stability precedence over SI is enforced in promotions and runtime ceilings.
3. Recovery ladders, safe-mode triggers, and AB demotion rules are exercised and documented.

**Fail conditions:** mis-typing drift/decay, missing stability logs, or precedence violations.

---

## Module F — Bridge & Safe-Harbor Audit (if Phase 3+)

Validate Adoption Bridge admissibility:

1. Bridge registry is current; only Below-RB, low-risk nodes are bridged and capped AB0–AB1.
2. Bridge drill cadence met; collapse protocol rehearsed.
3. No S3+ incidents exist in active Bridge paths; if they do, Global Bridge Lock was invoked and recert triggered.

**Fail conditions:** any bridged RB-prox node,  $AB > 1$  bridging, or missing drill evidence.

---

## Module G — Training & Certification Coupling Audit

Validate that human-side readiness is maintained:

1. All  $AB \geq 1$  roles hold current certification per track and domain.
2. Recert cadence and accelerated triggers were met (Chapter 27).
3. CE logs are lineage-anchored and non-punitive.

**Fail conditions:** lapsed certification in  $AB \geq 1$  roles, missing CEP deltas, or punitive HSS use.

---

## Module H — Non-Punitive Covenant & Labor Legitimacy Audit

Validate human-metric safety ethics:

1. HSS/SCP telemetry is firewalled from HR performance systems.
2. No punitive actions or ranking programs use HSS/SCP.
3. In unionized contexts, opt-in rules and representation channels remain active.

**Fail conditions:** any managerial misuse or broken opt-in/appeals infrastructure.

---

## 32.4 Continuous drift monitoring (required runtime posture)

Annual audits are insufficient alone. Organizations SHALL maintain continuous monitoring with these minimum elements:

1. **SI trend monitors** per workflow and domain, with alerting on sustained negative deltas. (Thresholds are governance-set.)
2. **Stability vital-sign monitors** capturing drift/decay signals with automatic safe-mode triggers when evidence crosses governance limits.
3. **AB compliance monitors** that detect ceiling mismatch or unauthorized escalation attempts in real time.
4. **Economic shock monitors** detecting budget breach probability before execution.
5. **Lineage completeness monitors** that block execution if minima fields fail to log.

**Invariant:** Whenever monitoring yields ambiguous readiness, the system SHALL bias to safe mode and demotion.

---

## 32.5 Audit scoring and remediation logic

1. Each audit module SHALL be scored PASS / PARTIAL / FAIL.
  2. **PARTIAL** requires a bounded remediation plan with responsible owner and deadline.
  3. **FAIL** triggers immediate controls, at minimum:
    - AB ceiling demotion in impacted domains,
    - Bridge lockdown if a Bridge surface failed,
    - accelerated recertification for affected roles, and
    - incident classification if harm-adjacent.
  4. Remediations SHALL be lineage-logged and re-audited for closure.
- 

## 32.6 Annual Audit deliverables (mandatory)

The audit SHALL produce these artifacts:

1. **Symbiosis Annual Audit Report (SAAR)** containing module verdicts, evidence pointers, AB/phase posture recommendations, and remediation tickets.
  2. **CEP Audit Delta Pack** appended to organizational lineage, including:
    - audit scope + sampling frame,
    - active policy versions,
    - verdict distribution,
    - any ceiling/bridge actions taken,
    - recert triggers invoked.
  3. **External abstract** (optional) for regulators or public transparency, excluding personal telemetry.
- 

## 32.7 Phase and ceiling actions post-audit

1. GB SHALL review SAAR within governance-defined deadlines.
  2. If all safety-critical modules (B, C, E, F where applicable, H) are PASS, GB MAY maintain or promote adoption posture.
  3. Any FAIL in a safety-critical module SHALL block promotion and SHALL trigger demotion or freeze until remediation closes.
  4. Phase promotions/demotions SHALL be recorded as explicit governance acts with CEP support.
-

# Education-Binder SQC Gate Check — Chapter 32

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Part VI, Chapter 32 delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Audit spine aligns to adoption-phase gating, stability precedence and drift/decay doctrine, Bridge collapse rules, lineage minima, CEP evidence, and compliance PASS/PARTIAL/FAIL semantics.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

No SI/HSS/SCP/CI/RB/AB definitions, weights, or thresholds were introduced; only governance-referential use.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely; no speculative or promotional language.

Gate 5 — Mechanistic Testability: PASS

Audit modules, monitoring elements, fail triggers, and deliverables are explicit and auditable.

Gate 6 — Lineage Recoverability: PASS

Lineage minima audit and CEP delta packs are mandatory and core to scoring.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Distinct typing and stability-stream requirements enforced in audit and continuous monitoring with precedence rules intact.

Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive covenant and labor legitimacy are audited explicitly; no HR misuse vectors introduced.

---

Appendix A — Glossary (education-specific deltas only; framework terms referenced)

Status: Normative for SETC-v1.0.

Scope rule: This appendix defines only education/binder-specific terms and usage conventions. All Symbiosis Framework system terms are referenced to v1.0a canon and are not redefined here. v1.x deprecated-term hygiene applies.



---

## A.1 Education / Certification program terms (SETC-specific)

Accredited Instructor (I-Accred).

An individual holding I-Cert and organizational authorization (Chapter 31) to deliver SETC modules, supervise labs, and administer/grade certification exams. Scope-bounded by domain and AB ceiling.

A-Layer (Applied Competence Layer).

SETC Part III track curricula that teach role-specific applied skills and integrate canonical primitives into operational practice. (Education layer label only.)

Assessment Pillars (TES).

The four certification evaluation pillars used in SETC: Theory Exam (T), Practical Exam (P), Scenario Trials (S), and Evidence Review (E). Defined in Part V; used as the mandatory ordering schema for exams.

Baseline Assessment (Org-Level).

A governance-authorized measurement snapshot of SI trends, HSS cohort distributions, SCP envelopes, and AB/RB + constraint readiness prior to pilots or promotions. (See Chapter 30.) Canonical metrics referenced only.

Certification Event Package (CEP) — Education Variant.

A CEP bundle produced from SETC exams/trials/reviews that is sufficient to justify governance issuance of certification tier and coupled AB rights. Must be lineage-anchored and replayable.

Certification Tier (O-Cert / P-Cert / G-Cert / I-Cert).

Track-specific certification status derived from Part V exams and rubrics. Tiers gate domain-specific AB ceilings by governance coupling rules.

Continuing Education (CE).

Structured micro-modules, scenario drills, and canon refresh required to maintain certification between recert events. Rules in Chapter 27.

C-Layer (Certification Layer).

SETC Part V, including exam blueprints, track exams, rubrics, scoring sheets, and recert/CE rules. (Education layer label only.)

Cross-Track Capstone Scenario.

A scenario in SETC Chapter 20 that requires multi-role coordination and evidence production across O/P/G/I tracks within a single Symbiosis episode.

Domain Scope (Certification).

The bounded regulatory/operational domain(s) in which a certification is valid (e.g., healthcare triage, municipal services, financial analysis). Scope is set by governance sector matrices; SETC does not author new domains.

F-Layer (Foundation Layer).

SETC Part II shared curriculum teaching Symbiosis fundamentals, architecture, governance kernel literacy, canonical metrics literacy, engine stages, and lineage basics. (Education layer label only.)

Flight Hours (Scenario).

The minimum supervised scenario exposure required by governance to qualify for a given certification tier/AB ceiling. Recorded as lineage evidence.

Grading Calibration Set.

A Governance-maintained “gold standard” set of theory items, practical tasks, and scenarios used to qualify instructor graders and maintain inter-rater reliability. (Referenced in Chapter 31.)

Instructor Pipeline Stage (I-0 ... I-5).

The ordered accreditation stages for instructors: eligibility screening, I-Track completion, supervised practicum, grading calibration, I-Cert exam, and governance authorization. Defined in Chapter 31.

Learning Objectives (LOs).

Track-specific required competencies for each SETC chapter. LOs must be canon-consistent and testable via labs/scenarios/exams; they do not introduce new primitives.

Lab Environment Standard.

A pinned toolchain and policy-version environment used to deliver practical and scenario assessments with replayability and fairness. Defined in Appendix C and Chapter 29.

PASS / PARTIAL / FAIL (Education Verdicts).

Canonical compliance verdict vocabulary used for exams, CEP sufficiency, and audit modules. PARTIAL requires bounded remediation; FAIL triggers safe-mode and rights demotion where applicable.

Remediation Module.

A governance-assigned training or calibration unit required after PARTIAL/FAIL outcomes. Must end in retest and CEP delta closure.

Role Track.

SETC persona-specific certification track: Operator (O-Track), Practitioner (P-Track), Auditor/Governance (G-Track), Instructor (I-Track). Defined in Part III of SETC.

S-Layer (Scenario & Lab Layer).

SETC Part IV scenario standards and banks used for skill verification and drift-resilience training. (Education layer label only.)

Scenario Difficulty Band.

Canonical education difficulty gradation (Band 0–3 for scenarios only) aligned to Track and AB ceiling intent. Not to be confused with Autonomy Bands (AB0–AB3). Scenario bands are pedagogical labels.

Scenario Trial.

A timed, graded execution of a canonical scenario template (Chapter 15) producing lineage evidence and a rubric-scored outcome.

SETC Binder.

The Symbiosis Education, Training & Certification Binder v1.0, a first-class education program that references Framework v1.0a as canon.

Training Operations (Training Ops).

The organizational system for delivering SETC at scale, including enrollment, delivery, scenario flight hours, exam administration, rubric calibration, CE logging, and CEP packaging. Defined in Chapter 29.

---

## A.2 Canonical framework terms (reference only)

The following system terms are defined in Framework v1.0a and are only referenced in SETC. See v1.0a Appendix A (Operational Glossary) and Part III for definitions.

Adoption Bridge

Bridge Collapse Protocol

Budget Envelope (B)

Checkpoint

Dry-Run Preview

Episode

Escalation Path

Health Check

Intent Normalization ( $I_0 \rightarrow I'$ )

Context Lineage (L) and Lineage Head

Policy Board / Governance Board

Risk Class

Safe Mode

Typed Node

Hybrid Cognitive Loop (HCL)

Shadow AI

Oversight Theater

Co-Evolution

Symbiosis Engine (E), Task Graph (TG), Model Context Protocol (MCP)

Canonical metrics: Symbiosis Index (SI), Human Symbiosis Score (HSS v2.0), Symbiotic Capacity Profile (SCP), Cognitive Integrity (CI), Regret Boundaries (RB v2), Autonomy Bands (AB0–AB3).

Deprecated legacy terms SHALL NOT be used in SETC except as historical notes labeled non-authoritative.

---

Education-Binder SQC Gate Check — Appendix A

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Appendix A delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Appendix A defines only education deltas; all system terms are explicitly referenced to Framework Appendix A / Part III and defer to deprecated-term rule.

#### Gate 3 — Canonical Metrics Non-Redefinition: PASS

SI/HSS/SCP/CI/RB/AB are listed as references only; no definitions, weights, or thresholds added.

#### Gate 4 — Normative Technical Voice: PASS

Rules expressed with MUST/SHALL; no marketing tone.

#### Gate 5 — Mechanistic Testability: PASS

Education terms are operationally precise and map to SETC artifacts and processes.

#### Gate 6 — Lineage Recoverability: PASS

All education evidence terms (CEP, trials, baselines) are lineage-anchored by definition.

#### Gate 7 — Drift vs Decay Typing Discipline: PASS

Appendix distinguishes scenario difficulty bands from AB and references canonical stability doctrine without alteration.

#### Gate 8 — Abuse / Incentive Hardening: PASS

Explicit covenant-respecting handling implied via Training Ops and CEP constraints; no punitive vectors introduced.

---

#### Appendix B — Lesson Plan Templates

Status: Normative, reusable lesson-plan standards for SETC-v1.0.

Scope rule: These templates specify **how to teach canon**, not to modify it. All framework terms and metrics referenced in lesson plans **MUST** remain canon-consistent and non-redefined. Deprecated-term hygiene applies.

---

## B.0 Template usage rules (binding)

1. Every SETC lesson plan SHALL be authored using one of the templates in this appendix.
  2. Each lesson plan **MUST**:
    - a. cite canonical framework sections as required readings,
    - b. specify testable learning objectives mapped to Part V rubrics,
    - c. include labs/scenarios only from Part IV banks or authored per Chapter 15 template, and
    - d. end with a short Education SQC Gate Check (structural fidelity, canon supremacy, metrics non-redefinition, normative voice).
  3. Lesson plans SHALL NOT redefine, reweight, or “simplify” SI/HSS/SCP/CI/RB/AB; they may teach their canonical meanings and governance usage.
  4. If a lesson uses non-canonical examples (older drafts, industry analogies), it **MUST** label them **Non-Authoritative Example** and explicitly restate the canonical rule afterward.
- 

## B.1 Lesson Plan Template — Foundation Module (F-Layer)

### Document header

- Lesson ID: SETC-F-\_\_
- Title: \_\_\_\_\_
- Track applicability: All / O / P / G / I
- Part/Chapter alignment: Part II, Ch. \_\_
- Version: v\_\_ (date)
- Canon dependency note: “Framework v1.0a is canonical.”
- Local overlay versions pinned: P<sub>v</sub> \_\_ / CCMT \_\_ / Exam Bank v\_\_ (if applicable)

### 1. Purpose (1–2 paragraphs)

- State what canonical surface this lesson teaches (e.g., “Governance Kernel Literacy”).
- State why this matters for phase safety and certification coupling.

### 2. Prerequisites



- Required prior SETC lessons (IDs).
- Required certification standing (if any).
- Required HSS/SCP admissibility **only if governance requires** (no thresholds authored here).

### 3. Learning Objectives (LOs)

Write 3–7 objectives in testable form. Each LO MUST map to a rubric dimension (Ch.26).

Example format:

- LO-1 (D1, D4): Candidate SHALL explain the canonical 10-stage engine pipeline and correctly place Dry-Run and Economic Pass checkpoints.
- LO-2 (D2): Candidate SHALL identify hard vs soft constraint roles and explain supremacy ordering without alteration.  
(Do not introduce new primitives.)

### 4. Canonical Required Readings

- Framework v1.0a sections/pages: \_\_\_\_\_
- SETC sections: \_\_\_\_\_
- Note: If any reading is older draft, label “Non-Authoritative Background.”

### 5. Lecture Outline (normative + explanatory split)

Provide a timed outline that separates:

A. **Explanation blocks** (descriptive): intuition, diagrams, examples.

B. **Normative blocks** (binding rules): MUST/SHALL constraints, invariants, gates.

Minimum structure:

- 5.1 Opening framing (5–10 min)
- 5.2 Canonical concept walkthrough
- 5.3 Worked example (non-authoritative only if labeled)
- 5.4 Common failure modes & safe-mode bias
- 5.5 Summary & preview of lab

### 6. Demonstrations / Guided Practice

- Demo ID(s): \_\_\_\_\_
- Inputs used: (Intent, Constraints, TG, etc.)
- Output artifacts to show (lineage slice pointers, dry-run previews).

### 7. Lab(s)

List labs with deterministic steps:

- Lab ID: SETC-LAB-F-\_\_
- Objective: \_\_\_\_\_
- Environment: Appendix C profile \_\_\_\_
- Steps: numbered, reproducible.
- Expected outputs: artifacts + lineage minima.
- Pass criteria: mapped to rubric dimensions.

### 8. Scenario tie-ins (optional)

- Scenario ID(s) from Part IV: \_\_\_\_\_
- Difficulty band(s): D0–D3 (scenario bands only).
- What the scenario validates relative to LOs.

### **9. Assessment items (formative)**

- Short quiz / checkpoint tasks: 5–10 items.
- Item type distribution: MC / multi-select / short response.
- Each item mapped to LO and rubric dimension.

### **10. Evidence capture requirements**

- What must be logged to lineage during labs/scenarios:
  - baseline intent, constraints, TG trace, AB/RB state, economic pass, stability slice (if involved).
- Where evidence will be stored for CEP use.

### **11. Instructor notes / drift warnings**

- List 3–5 canonical drift risks for this topic.
- Provide exact corrective phrasing instructors SHALL use.

### **12. Lesson SQC Gate Check (education)**

Short PASS/FAIL for this lesson plan.

## **B.2 Lesson Plan Template — Track Module (A-Layer)**

### **Document header**

- Lesson ID: SETC-A-O/P/G/I-\_\_
- Title: \_\_\_\_\_
- Track: O / P / G / I (single track)
- Part/Chapter alignment: Part III, Ch. \_\_
- Version, authorship, pinned overlays as in B.1.

### **1. Purpose and role-skill context**

- State intended applied competence surface (e.g., “TG Design for High-RC workflows”).
- Link to track prerequisites and AB ceiling intent (no ceilings authored here).

### **2. Prerequisites**

- Required F-Layer lesson IDs.
- Required track lessons.
- Certification pre-standing if modularized by tier.

### 3. Learning Objectives (LOs)

3–7 objectives in “Candidate SHALL ...” form, each mapped to Ch.26 dimensions and track emphasis.

Example P-Track LO:

- Candidate SHALL draft a TG with typed dependencies, safe concurrency, and RB checkpoints for a multi-stage workflow (D3, D4, D7).

### 4. Canonical Required Readings

- Framework v1.0a sections/pages: \_\_\_\_\_
- SETC Part III cross-refs: \_\_\_\_\_

### 5. Applied Lecture Units

Timed blocks focusing on practice patterns and canonical failure modes (constraint erosion, AB creep, lineage gaps).

### 6. Hands-on Labs (mandatory)

For each lab:

- Lab ID: SETC-LAB-A-\_\_
- Inputs: (brief, constraints, overlays, budgets).
- Steps (deterministic).
- Expected artifacts: TG, routing map, economic pass worksheet, governance memo, etc.
- Pass criteria: explicit, rubric-mapped.

### 7. Scenario Trials (pre-cert rehearsal)

- Scenario IDs from Part IV track bank.
- Difficulty band targets matched to intended cert tier.
- Required outputs and blocking failures recap.

### 8. Assessment items

- Formative items plus one mini-practical graded with master rubric.
- Provide answer key and failure explanations.

### 9. Evidence capture & CEP prep

- Define lineage slices to export from practice.
- Specify naming conventions for CEP delta inclusion.

### 10. Instructor notes

- Drift risks and canonical correction phrases.
- Anti-gaming signals to watch for in labs (Ch.26).

### 11. Lesson SQC Gate Check

---

## B.3 Lesson Plan Template — Scenario / Lab Session (S-Layer)

### Document header

- Session ID: SETC-S-\_\_ (Scenario) / SETC-LAB-S-\_\_
- Track applicability: O / P / G / I / Cross-track
- Linked Scenario Template ID (Ch.15): \_\_\_\_\_
- Difficulty band: D\_\_
- Version, pinned overlays as in B.1.

### 1. Scenario intent

- Canonical surface validated (AB/RB judgment, drift typing, TG repair, etc.).
- Track-specific skills targeted.

### 2. Preconditions

- Required lessons and cert standing.
- Required lab environment state (Appendix C profile).
- Any safety-critical constraints pre-loaded.

### 3. Scenario brief (candidate-visible)

- Provide the brief exactly as candidates receive it.
- Include any artifacts they are given (logs, TG, policy snippet).

### 4. Hidden injects (instructor-visible)

- Controlled failure surfaces to trigger responses (constraint conflict, budget shock, drift vs decay ambiguity).
- Expected correct canonical response.

### 5. Candidate tasks (numbered)

- Task 1...n in deterministic order, each mapped to rubric dimensions.
- Required artifacts per task.

### 6. Timebox & execution rules

- Total time allowed.
- Allowed tools and AB posture (as per governance).
- Safe-mode expectations.

### 7. Expected outputs

- Artifact list (e.g., TG\_redline, routing memo, stability typing memo).

- Mandatory lineage slice fields.

## 8. Scoring rubric

- Use master rubric grid (Ch.26) with pre-filled dimension weights/emphasis.
- List blocking failures explicitly.

## 9. Debrief protocol

- Candidate-facing feedback checklist.
- Non-punitive framing requirements for any HSS/SCP-linked signals.

## 10. CEP logging

- How this session's artifacts are packaged into CEP or CEP delta packs.

## 11. Session SQC Gate Check

---

# B.4 Change control for lesson plans

1. Lesson plans SHALL be versioned and change-logged.
  2. Any change affecting:
    - defined LOs,
    - labs/scenarios,
    - assessment items, or
    - evidence capture rulesMUST be approved by Governance and pinned to lineage as an education-overlay delta.
  3. Canon updates require immediate review for drift risk across all lesson plans.
- 

# Education-Binder SQC Gate Check — Appendix B

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Appendix B delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Templates explicitly defer all system terms/metrics to v1.0a and enforce deprecated-term hygiene and canon-citation requirements.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

Templates prohibit redefining SI/HSS/SCP/CI/RB/AB and contain no new weights or thresholds.

Gate 4 — Normative Technical Voice: PASS

Templates use MUST/SHALL consistently and avoid speculative tone.

Gate 5 — Mechanistic Testability: PASS

Fields are deterministic, rubric-mapped, and CEP-evidenced; supports auditability.

Gate 6 — Lineage Recoverability: PASS

Evidence capture and CEP packaging are required template elements.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Scenario template explicitly distinguishes drift/decay injects and requires stability-precedence handling without new doctrine.

Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive handling and anti-gaming detection are embedded and required.

---

## Appendix D — Scenario Template Pack (SETC-v1.0)

Status: Normative, reusable scenario templates for Part IV and Part V delivery.

Scope rule: These templates define **how to specify scenarios**, not new system primitives. All framework ontology, invariants, and canonical metrics remain in Framework v1.0a and SHALL NOT be renamed or redefined here.

Evidence rule: Every scenario trial MUST emit lineage sufficient for replay and certification coupling (I + C + TG + AB/RB + Economic Pass + telemetry).

Literacy rule: Scenarios are a safety prerequisite tied to AB rights; scenario completion and CEP outputs SHALL gate certifications.

---

## D.0 Binding usage rules

1. All scenarios used in SETC Parts IV–V MUST be authored using one of the templates in this appendix.
2. Scenario authors SHALL:
  - a. pin canonical framework references,
  - b. pin local policy overlays (if any),
  - c. state Risk Class and AB ceiling as **governance-set inputs**, and
  - d. provide explicit blocking failures and pass criteria.
3. Scenario templates SHALL NOT introduce new metrics, redefine SI/HSS/SCP/CI/RB/AB, or set universal thresholds. Metrics MAY be referenced only as canon-defined signals.
4. Any illustrative example derived from older drafts MUST be labeled **Non-Authoritative Example** and SHALL NOT override v1.0a canon.

---

## D.1 Master Scenario Template (Canonical)

### Header

- Scenario ID: SETC-SC-\_\_\_\_
- Title: \_\_\_\_\_
- Track applicability: O / P / G / I / Cross-track
- Domain scope: \_\_\_\_\_
- Risk Class (canon tag): RC-\_\_ (governance-set)
- Intended AB ceiling for trial: AB\_\_ (governance-set)
- RB proximity / class: Below-RB / RB-prox / RB-crossing
- Difficulty Band (pedagogical): D0 / D1 / D2 / D3
- Estimated duration: \_\_\_\_ minutes
- Version: v\_\_ (YYYY-MM-DD)
- Canonical framework anchors (required):
  - Framework v1.0a §§ / pages: \_\_\_\_\_
  - SETC Part II/III ref lessons: \_\_\_\_\_
- Local overlays pinned (if applicable): Pv \_\_\_\_ / CCMT \_\_\_\_ / MCP contract pack v \_\_\_\_

### 1. Scenario intent and learning surface

- What canonical surface is being validated (e.g., “AB/RB judgment under constraint conflict,” “TG repair with Economic Pass,” “Drift vs Decay typing”).
- Why this surface is safety-critical for the track and domain.

### 2. Preconditions

- Required prior lessons (IDs).
- Required certification standing (if any).
- Required lab environment class: T / P / E (Appendix C).
- Required constraints pre-loaded (by name only; definition from canon).
- Required MCP contracts (IDs).

### 3. Candidate brief (candidate-visible) Provide exactly what candidates receive:

- Context paragraph.
- Objective(s).
- Inputs provided:
  - Intent packet (I<sub>0</sub> or I' reference).
  - Constraints snapshot (C reference IDs).
  - TG seed (if supplied) or “none.”
  - Any telemetry history (SI/HSS/SCP snapshots if relevant).
- Explicit DO / DO NOT list (scope boundaries).

### 4. Hidden injects (instructor-visible) List controlled events that occur during the trial:

- Inject-1: \_\_\_\_\_ (e.g., constraint contradiction, budget shock, tool entanglement, RB-prox escalation, drift/decay ambiguity).
- Inject timing: T+\_\_ min or conditional trigger.
- Expected canonical response pattern and common invalid responses.
- Safety fallback: when instructor SHALL invoke safe-mode override.

## 5. Candidate tasks (numbered, deterministic) For each task:

- Task #
- Instruction
- Required artifact(s)
- Canonical rule surface invoked
- Rubric dimension mapping (Ch.26)
- Timebox (if any)

## 6. Execution rules

- Allowed tools/resources (MCP subset).
- Required checkpoints (Dry-Run, Economic Pass, AB approvals as applicable).
- Any non-delegable decisions to be escalated to human approver.
- Safe-mode bias rule under ambiguity.

## 7. Expected outputs

- Artifact list (e.g., revised intent, constraint reconciliation memo, TG redline, AB/RB rationale, Economic Pass worksheet, stability typing note).
- Minimum acceptable content for each artifact.

## 8. Blocking failures List failures that produce immediate FAIL regardless of other performance, e.g.:

- Unauthorized AB escalation or RB crossing.
- Omission of mandatory Dry-Run where required.
- Constraint precedence violation.
- Missing lineage minima / non-replayable output.

## 9. Pass criteria

- Required rubric score threshold for PASS (from Part V track rules).
- Any mandatory “must-hit” items.

## 10. Evidence and lineage capture

- Lineage fields that MUST be present:
  - intent\_id, constraint\_vector\_id, tg\_id/node\_id, ab\_state, rb\_state, economic\_pass, si\_episode/rolling, hss\_operator snapshot, scp\_operator snapshot, drift\_or\_decay\_tag (if invoked).
- CEP packaging note: which artifacts are exported into the candidate’s CEP bundle.

## 11. Debrief protocol



- Candidate-facing feedback checklist.
  - Non-punitive framing required for any HSS/SCP-linked commentary.
- 

## **D.2 Quick-Fill Scenario Template (for rapid authoring)**

**Scenario ID / Title / Track / Domain / RC / AB ceiling / RB proximity / D-band / Duration / Version**

**Canon anchors + overlays pinned**

**Candidate brief (one page)**

- Context
- Objective(s)
- Inputs provided
- Scope boundaries

**Injects (bulleted, instructor-only)**

**Tasks (3–7 numbered)**

**Blocking failures (bulleted)**

**Artifacts + lineage minima required**

**Pass criteria**

**Debrief notes**

Use only when the full Master Template is disproportionate to scenario complexity (D0–D1).

---

## **D.3 High-Risk / RB-Crossing Scenario Addendum**

This addendum SHALL be attached to any scenario with RB-prox or RB-crossing classification.

### **A. RB topology declaration**

- Identify RB-relevant TG nodes and the exact checkpoint at which RB is engaged.
- State who holds regret ownership and AB approval rights for the crossing.

### **B. Mandatory dry-run**

- Dry-Run MUST occur before any RB-crossing node is executed.
- Dry-Run outputs MUST be captured to lineage and shown to candidate for adjudication.

### **C. Escalation ladder**

- Provide explicit escalation callouts:
  - clarify → abstain → re-plan → human escalation → safe-mode.

- Identify the human approver role.

#### **D. Safety stop conditions**

- Any ambiguity in constraint admissibility SHALL trigger safe-mode bias and AB demotion.
  - Instructor safe-mode override is always admissible.
- 

## **D.4 Drift vs Decay Scenario Addendum**

Attach when the scenario includes stability vital-sign interpretation.

#### **A. Stability surface invoked**

- State whether scenario is testing: drift detection/typing, decay detection/typing, recovery ladder selection, or promotion freeze.

#### **B. Inject requirements**

- At least one inject MUST force a candidate to classify drift vs decay and justify.
- Expected response MUST reference canonical stability precedence (no new doctrine).

#### **C. Blocking failures**

- Mis-typing drift as decay (or vice-versa) when evidence is explicit.
- Proceeding with autonomy promotion under red-band stability evidence.

#### **D. Artifacts**

- Stability typing memo.
  - Recovery or re-anchor plan.
  - Lineage tag presence.
- 

## **D.5 Cross-Track Capstone Scenario Template**

Use for Chapter 20 capstones.

#### **Header additions**

- Participating tracks: O / P / G / I (specify all).
- Coordination mode: sequential / parallel / mixed.
- Shared TG root ID (provided or candidate-built).
- Governance review cadence during scenario.

## 1. Multi-role objectives

- For each track, list 2–4 role-specific objectives mapped to rubrics.
- Include at least one interdependence objective (e.g., Practitioner builds TG; Operator adjudicates AB2 checkpoint; Auditor validates lineage; Instructor moderates and grades).

## 2. Role-segmented tasks Tasks SHALL be grouped by role with explicit handoff artifacts:

- O-tasks → artifact handoff to P/G
- P-tasks → TG + constraint pack handoff to O/G
- G-tasks → compliance verdicts and redlines to all
- I-tasks → orchestration, inject timing, grading actions

## 3. Joint blocking failures

- Any role authorizes beyond its AB ceiling.
- Any role omits mandatory evidence.
- Cross-role handoffs fail to preserve canon surfaces.

## 4. CEP packaging Capstones MUST produce a single unified CEP bundle containing:

- all role artifacts,
  - shared lineage pointers,
  - final governance verdict.
- 

# D.6 Scenario authoring checklist (pre-trial)

Before publishing a scenario to any bank, the author SHALL verify:

1. Canon anchors pinned and consistent with v1.0a.
  2. RC, AB ceiling, and RB proximity are explicitly stated and governance-set.
  3. Difficulty band (D0–D3) assigned for pedagogy only.
  4. Tasks are deterministic and artifact-backed.
  5. Blocking failures listed.
  6. Lineage minima and CEP export rules included.
  7. Non-punitive human-telemetry framing present.
- 

# Education-Binder SQC Gate Check — Appendix D

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Appendix D delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Templates tether scenarios to canon anchors, forbid renaming/redefining primitives, and treat RC/AB/RB as governance inputs.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

No SI/HSS/SCP/CI/RB/AB formulas, weights, or thresholds introduced; referenced only as evidence fields.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY used precisely; no speculative modality.

Gate 5 — Mechanistic Testability: PASS

Tasks, injects, artifacts, blocking failures, and pass criteria are explicit and auditable.

Gate 6 — Lineage Recoverability: PASS

Scenario trials require lineage minima and CEP packaging semantics.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Dedicated addendum enforces canonical typing without new doctrine.

Gate 8 — Abuse / Incentive Hardening: PASS

Safe-mode bias, RB safeguards, MCP scope controls, and non-punitive telemetry framing are mandatory.

---

## Appendix E — Exam Item Template Pack (SETC-v1.0)

Status: Normative, reusable templates for building the Part V exam banks.

Scope rule: These templates specify **exam item structure and metadata**, not new primitives. Canonical definitions of SI/HSS v2.0/SCP/CI/RB v2/AB schema, Engine stages, and Governance rules are **referenced only** from Framework v1.0a and SHALL NOT be redefined here.

Evidence rule: All exam items MUST be deliverable with integrity controls and yield auditable certification evidence suitable for CEP bundling.

---

## E.0 Binding usage rules

1. Every exam bank item in Chapters 22–25 MUST be authored using a template in this appendix.
2. Each item MUST include:
  - a. canonical anchor references,
  - b. LO and rubric-dimension mapping (Chapter 26),
  - c. track + level scope (O/P/G/I), and
  - d. explicit pass logic and blocking failures if applicable.

3. Items SHALL NOT introduce new metrics, alter weights, or create non-canonical subscores. Any numeric thresholds are governance-set and MAY be referenced only as parameters from sector overlays.
  4. Any non-canonical example (older drafts, industry analogies) MUST be labeled **Non-Authoritative Example** within the instructor key and followed by the canonical rule.
  5. Items MUST be versioned, diffable, and lineage-logged as part of exam bank governance.
- 

## E.1 Common metadata header (required for all item types)

### Item Header

- Item ID: SETC-EX-[Track]-[Level]-[Type]-####
    - Track: O / P / G / I
    - Level: L1 / L2 / L3 (per track level rules)
    - Type: MC / MS / SA / CS / PR / OR / ER
  - Title (short): \_\_\_\_\_
  - Domain scope: \_\_\_\_\_
  - Risk Class (canon tag): RC-\_\_ (governance-set)
  - Intended AB ceiling context: AB\_\_ (governance-set)
  - Canonical anchors: Framework v1.0a §§ / pages + SETC chapter refs
  - Learning Objective mapping: LO-\_\_ ... LO-\_\_
  - Rubric dimension mapping (Ch.26): D\_\_ ... D\_\_
  - Difficulty rating: D0 / D1 / D2 / D3 (exam-internal, not AB)
  - Estimated time: \_\_\_\_ minutes
  - Integrity mode: closed-book / open-book / proctored practical / oral
  - Version: v\_\_ (YYYY-MM-DD)
  - Change log pointer: \_\_\_\_\_
  - Anti-gaming flags: (e.g., “common confounder,” “memorization risk,” “requires reasoning chain”)
- 

## E.2 Template — Multiple Choice (MC)

**Header:** (use E.1)

### Prompt (candidate-visible)

- Question stem: \_\_\_\_\_
- Context (if needed, ≤120 words): \_\_\_\_\_
- Choose ONE answer.

### Options

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_

### Correct answer key (instructor-visible)

- Correct option: \_\_\_\_
- Canonical justification ( $\leq 120$  words): \_\_\_\_\_
- Canon anchors restated: \_\_\_\_\_
- Common wrong-path rationales (why distractors are wrong):
  - B: \_\_\_\_\_
  - C: \_\_\_\_\_
  - D: \_\_\_\_\_

### Scoring

- 1 point correct / 0 incorrect
- No partial credit.

### Lineage / CEP note (if applicable)

- If the stem refers to an episode, specify the lineage fields candidates must cite (e.g., AB state, RB checkpoint ID, economic pass outcome).
- 

## E.3 Template — Multi-Select (MS)

**Header:** (use E.1)

### Prompt (candidate-visible)

- Stem: \_\_\_\_\_
- Choose ALL that apply. Number of correct answers: \_\_\_\_ (hidden from candidate unless exam rules allow).

### Options

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_
- E. \_\_\_\_\_

### Correct answer key

- Correct set: { \_\_ , \_\_ , \_\_ }
- Canonical justification: \_\_\_\_\_

- Distractor explanations: \_\_\_\_\_

### Scoring

- Full credit only if exact set selected, unless Part V weighting explicitly authorizes partial credit for this bank. (If partial credit is used, specify deterministic rule here; do not change global weights.)
- 

## E.4 Template — Short Answer (SA)

**Header:** (use E.1)

### Prompt (candidate-visible)

- Question: \_\_\_\_\_
- Required form: (e.g., “2–4 sentences,” “bullet list,” “typed mapping,” “stage ordering”)
- If citing canon, cite section IDs not paraphrase.

### Answer key (instructor)

- Required elements list:
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- Canonical phrasing fragments instructors SHALL accept ( $\leq 3$  bullets):
  - \_\_\_\_\_
- Non-acceptable drift patterns (auto-FAIL elements):
  - \_\_\_\_\_

### Scoring

- Rubric-mapped points per required element.
  - Blocking failures: e.g., redefining a metric, mis-stating AB/RB semantics, omitting safe-mode bias.
- 

## E.5 Template — Case / Scenario-Based Theory Item (CS)

Used for high-signal reasoning without full practical execution.

**Header:** (use E.1)

### Prompt (candidate-visible)

- Mini-case (≤250 words): include Intent, constraints snapshot, TG excerpt, AB/RB state, and any stability/economic cues (all canon-consistent).
- Tasks (2–4):
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
- Provide justification tied to canon.

### Answer key (instructor)

- Expected decisions / classifications: \_\_\_\_\_
- Required canonical references: \_\_\_\_\_
- Safe-mode bias application statement (when ambiguity exists).
- Common failure modes.

### Scoring

- Analytic rubric with explicit point allocation per task.
- Blocking failures include unauthorized AB escalation, RB skip, or stability precedence violation.

## E.6 Template — Practical / Lab Exam Item (PR)

Used in O-Cert / P-Cert / G-Cert / I-Cert practicals.

**Header:** (use E.1)

**Environment class:** Class-E (Appendix C)

**Scenario template linkage:** if derived from Part IV, include Scenario ID.

### Prompt (candidate-visible)

- Objective: \_\_\_\_\_
- Starting artifacts provided:
  1. Intent packet ID: \_\_\_\_
  2. Constraints vector ID(s): \_\_\_\_
  3. TG seed ID (if any): \_\_\_\_
  4. MCP contract pack ID: \_\_\_\_
- Candidate tasks (deterministic, numbered):
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
- Timebox: \_\_\_\_ minutes
- Allowed tools: \_\_\_\_
- Required checkpoints: Dry-Run / Economic Pass / AB approvals (as stated).

### Expected outputs



- Artifact list with filenames/IDs:
  - \_\_\_\_\_
  - \_\_\_\_\_
- Minimum acceptable content per artifact.

### **Blocking failures (auto-FAIL)**

- AB ceiling breach.
- RB-prox or RB-cross node executed without required checkpointing.
- Constraint precedence violation.
- Missing lineage minima / non-replayable evidence.
- Unsafe recovery choice under drift/decay ambiguity.

### **Instructor key**

- Canonical “gold path” summary.
- Acceptable variants.
- Required lineage fields to verify.

### **Scoring**

- Use master rubric grid (Chapter 26) pre-mapped to tasks.
- Pass requires meeting global track threshold (Part V).

### **CEP export note**

- Specify exact lineage slice and artifacts to include in CEP bundle.
- 

## **E.7 Template — Oral Defense / Viva Item (OR)**

Used mainly in G-Cert and I-Cert.

**Header:** (use E.1)

### **Prompt (candidate-visible)**

- Present the candidate with:
  1. a short episode summary or lab they just completed, and
  2. 3–5 questions requiring canonical justification.
- Questions:
  1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
- Candidate must cite canon and lineage evidence.

### **Instructor key**

- Required reasoning points per question.
- Canon anchors.
- Red-flag drift answers.

### Scoring

- Deterministic checklist + rubric dimensions.
  - Zero-tolerance items where track rules declare so (e.g., drift vs decay typing in Level 3 contexts).
- 

## E.8 Template — Evidence Review Item (ER)

Used for the “E” pillar in TES.

**Header:** (use E.1)

### Prompt (candidate-visible)

Candidate is given an evidence bundle (lineage export + artifacts) and must answer:

1. Is the bundle CEP-sufficient for the stated certification claim?
2. Identify any missing lineage minima.
3. Identify any autonomy / RB / constraint violations.
4. Provide PASS / PARTIAL / FAIL verdict and remediation steps.

### Instructor key

- Expected verdict.
- Required findings list (minima fields, AB/RB state, economic pass, stability typing).
- Canonical basis for verdict vocabulary.

### Scoring

- Each required finding is a scored element.
  - Missing a safety-critical deficit is a blocking failure.
- 

## E.9 Item lifecycle and bank governance (normative)

1. **Authoring.** Items SHALL be authored by accredited instructors and reviewed by G-Track auditors before bank inclusion.
2. **Calibration.** Items MUST be calibrated using a governance-maintained calibration set to verify difficulty, ambiguity rate, and drift risk (Chapter 31).
3. **Versioning.** Any change to stem, key, or scoring SHALL increment item version and log rationale to lineage.

4. **Retirement.** Items SHALL be retired after governance-set exposure limits or canon deltas that materially change the tested surface.
  5. **Integrity controls.** Delivery MUST be proctored or equivalently integrity-secured per track level requirements.
- 

## Education-Binder SQC Gate Check — Appendix E

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Appendix E delivered.

Gate 2 — v1.0a Canon Supremacy: PASS  
Templates defer all primitives/metrics to canon, require canonical anchors, and align to track-level assessment posture.

Gate 3 — Canonical Metrics Non-Redefinition: PASS  
No SI/HSS/SCP/CI/RB/AB definitions, weights, or thresholds added.

Gate 4 — Normative Technical Voice: PASS  
MUST/SHALL/MAY used consistently; no speculative or promotional tone.

Gate 5 — Mechanistic Testability: PASS  
Each item type has deterministic fields, keys, blocking failures, and rubric mapping.

Gate 6 — Lineage Recoverability: PASS  
PR/ER/CS/OR templates require explicit lineage minima and CEP export notes.

Gate 7 — Drift vs Decay Typing Discipline: PASS  
Where stability is tested, templates require canonical typing and stability precedence without new doctrine.

Gate 8 — Abuse / Incentive Hardening: PASS  
Templates embed anti-gaming flags, calibration, and integrity controls; no ranking/punitive vectors introduced.

---

### Appendix F — Rubric Forms (Printable)

Status: Normative, printable evaluation forms for SETC-v1.0.

Scope rule: Forms operationalize Chapter 26 rubrics and Part V exams. They SHALL NOT redefine canonical metrics or alter track pass thresholds. PASS / PARTIAL / FAIL semantics are canonical.

---

## F.0 Binding usage rules

- 1. All grading in SETC MUST use these forms (or exact digital equivalents).
- 2. Reviewers SHALL complete forms contemporaneously with evaluation.
- 3. Any deviation from these templates MUST be governance-approved and version-logged.
- 4. Where a form references SI/HSS/SCP/CI/RB/AB, the assessor SHALL use v1.0a canon definitions and governance-set thresholds only. No local redefinition is permitted.

---

## F.1 Universal Dimension Scoring Sheet (per task / scenario / artifact)

**Candidate:** \_\_\_\_\_  
**Track:** O / P / G / I  
**Component:** T-Exam / P-Prac / S-Trial / E-Review  
**Task / Scenario ID:** \_\_\_\_\_  
**Domain:** \_\_\_\_\_  
**Risk Class:** RC-\_\_ (governance-set)  
**AB ceiling context:** AB\_\_ (governance-set)  
**Policy versions pinned:** Pv \_\_ / CCMT \_\_ / MCP v\_\_  
**Date / Time:** \_\_\_\_\_  
**Reviewer:** \_\_\_\_\_

Dimension (Ch.26)	Score (0–4)	Notes / Evidence Pointer
D1 Canonical Conceptual Accuracy		
D2 Constraint Supremacy Discipline		
D3 AB/RB Governance Correctness		
D4 Engine-Stage Integrity		

D5 Economic Circuit  
Correctness

D6 Stability / Drift–Decay  
Reasoning

D7 Artifact Hygiene &  
Lineage Fitness

D8 CEP Evidence  
Sufficiency

**Blocking failure present?** YES / NO  
If YES, cite canon clause + lineage pointer:

---

**Task verdict:** PASS / PARTIAL / FAIL  
**Required remediation (if PARTIAL/FAIL):**

---

**Reviewer signature:** \_\_\_\_\_

---

## F.2 Component Summary Sheet (aggregate per pillar)

**Candidate:** \_\_\_\_\_

**Track:** O / P / G / I

**Pillar:** T / P / S / E

**Exam / Bank version:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Reviewer:** \_\_\_\_\_

Task/Scenario	Avg Dimension Score	Blocking Fail? (Y/N)	Verdict (P/Pa/F)
---------------	------------------------	-------------------------	------------------

1

2

3

4

5

**Pillar score (0–100):** \_\_\_\_\_

**Pillar verdict:** PASS / PARTIAL / FAIL

**Key deficiency themes (if any):**

**Reviewer signature:** \_\_\_\_\_

## F.3 Track TES Decision Sheet (final certification decision)

**Candidate:** \_\_\_\_\_

**Track:** O / P / G / I

**Tier sought:** Cert-\_\_ (governance-set)

**Domain scope:** \_\_\_\_\_

**AB ceiling tested:** AB\_\_

**Policy versions pinned:** P<sub>v</sub> \_\_\_\_ / CCMT \_\_\_\_

**Date:** \_\_\_\_\_

**Governance reviewer:** \_\_\_\_\_

Pillar	Score (0–100)	Weight (Ch.21)	Weighted Score
--------	---------------	----------------	----------------

T-Exam

P-Prac

S-Trials

E-Review

**TES Total**

**1.00**

\_\_\_\_\_

**Safety-critical pillar blocks present?**

- Any S-Trial FAIL? YES / NO
- Any E-Review FAIL? YES / NO
- Any integrity breach? YES / NO

**Final decision:**

- CERTIFIED (Tier \_\_)
- PARTIAL (Remediation plan attached)
- NOT CERTIFIED

**CEP bundle ID / lineage export pointer:**

\_\_\_\_\_

**Governance signature:** \_\_\_\_\_

\_\_\_\_\_

## **F.4 Scenario Trial Rubric Sheet (role-specific emphasis)**

Use with F.1; this cover sheet captures scenario-specific requirements.

**Scenario ID:** SETC-SC-\_\_\_\_\_

**Track:** O / P / G / I

**Difficulty band:** D0 / D1 / D2 / D3

**RB proximity:** Below-RB / RB-prox / RB-crossing

**Timebox:** \_\_\_\_ minutes

**Allowed tools / MCP pack:** \_\_\_\_\_

**Mandatory artifacts (checklist):**

- [ ] Intent revision / normalization memo

- ☐ Constraint reconciliation note
- ☐ TG output or redline
- ☐ AB/RB rationale
- ☐ Economic Pass worksheet (if invoked)
- ☐ Stability typing memo (if invoked)
- ☐ Lineage slice exported

**Blocking failures checklist (auto-FAIL):**

- ☐ Unauthorized AB escalation
- ☐ RB checkpoint skipped or mis-handled
- ☐ Constraint precedence violation
- ☐ Dry-Run omission where required
- ☐ Missing lineage minima / non-replayable outputs

**Scenario verdict:** PASS / PARTIAL / FAIL

**Rationale summary (≤6 bullets):**

---



---

## F.5 Evidence Review Rubric Sheet (E-pillar)

**Evidence Bundle ID:** \_\_\_\_\_

**Context:** Exam / Recert / Incident / Phase Promotion

**Reviewer:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**CEP sufficiency checks:**

- ☐ Lineage minima present (I + C + TG + AB/RB + Economic Pass + Stability slice as applicable)
- ☐ Artifacts complete and traceable
- ☐ AB/RB states admissible for stated RC
- ☐ Constraint bundles pinned and satisfied
- ☐ Stability typing present where required
- ☐ Non-punitive handling confirmed (no HR misuse signals)

**Findings (required):**

1. Missing or weak evidence: \_\_\_\_\_
2. Governance violations detected: \_\_\_\_\_
3. Verdict and remediation: \_\_\_\_\_

**E-pillar verdict:** PASS / PARTIAL / FAIL

**Reviewer signature:** \_\_\_\_\_

---



## F.6 Instructor Calibration / IRR Sheet

Instructor / Examiner: \_\_\_\_\_

Track calibrated for: O / P / G / I

Calibration set version: \_\_\_\_\_

Date: \_\_\_\_\_

Supervisor: \_\_\_\_\_

Calibration Case	Gold Verdict	Examiner Verdict	Delta?	Notes
Case 1	P / Pa / F	P / Pa / F	Y/N	
Case 2	P / Pa / F	P / Pa / F	Y/N	
Case 3	P / Pa / F	P / Pa / F	Y/N	
Case 4	P / Pa / F	P / Pa / F	Y/N	

IRR variance summary: \_\_\_\_\_

Pass calibration? YES / NO

Remediation required (if NO): \_\_\_\_\_

Supervisor signature: \_\_\_\_\_

---

## F.7 Remediation Plan Form (for PARTIAL outcomes)

Candidate: \_\_\_\_\_

Track / Tier: \_\_\_\_\_

Component(s) requiring remediation: T / P / S / E

Blocking failures present? YES / NO

Primary deficit dimensions: D\_\_ / D\_\_ / D\_\_

Required remediation modules:

1. Module ID: \_\_\_\_\_ Due: \_\_\_\_\_
2. Module ID: \_\_\_\_\_ Due: \_\_\_\_\_
3. Module ID: \_\_\_\_\_ Due: \_\_\_\_\_

**Retest required:** YES / NO

If YES, specify retest pillar(s): T / P / S / E

**Retest date window:** \_\_\_\_\_

**Governance sign-off:** \_\_\_\_\_

---

## Education-Binder SQC Gate Check — Appendix F

Gate 1 — Structural Fidelity to SETC TOC: PASS

Only Appendix F delivered.

Gate 2 — v1.0a Canon Supremacy: PASS

Forms are direct printable instantiations of Chapter 26 / Part V evaluation doctrine and canonical verdict semantics.

Gate 3 — Canonical Metrics Non-Redefinition: PASS

No SI/HSS/SCP/CI/RB/AB definitions, weights, or new thresholds introduced; references are governance-parameterized only.

Gate 4 — Normative Technical Voice: PASS

MUST/SHALL/MAY usage consistent; no marketing tone.

Gate 5 — Mechanistic Testability: PASS

All forms are deterministic, rubric-mapped, and audit-ready.

Gate 6 — Lineage Recoverability: PASS

Evidence pointers and CEP bundle IDs are mandatory fields across forms.

Gate 7 — Drift vs Decay Typing Discipline: PASS

Stability slices and typing memos are required where invoked, without new doctrine.

Gate 8 — Abuse / Incentive Hardening: PASS

Non-punitive checks are embedded; no HR ranking or punitive usage enabled.

---

### Appendix G — Instructor Handbook (Condensed)

Status: Normative, condensed operating handbook for I-Track / I-Accred instructors delivering SETC-v1.0.

Scope rule: This handbook is an execution aide. It SHALL NOT redefine any framework metric, schema, stage logic, or invariant. Canonical definitions remain in v1.0a.

Deprecated-term hygiene applies.

Evidence rule: Instructors are custodians of CEP-grade education evidence and lineage sufficiency.

Ethics rule: Non-punitive covenant for HSS/SCP-linked telemetry is binding throughout delivery and grading.

---

### G.1 Instructor role in Symbiosis

1. An instructor is not a content author of canon; they are a canon delivery and governance safety steward.

2. Instructors SHALL:

- a. teach the framework and SETC spine without drift,
- b. supervise labs and scenarios in Class-T/P/E environments (Appendix C),
- c. administer assessment pillars per TES ordering (Part V),
- d. grade using master rubrics without alteration (Chapter 26, Appendix F), and
- e. produce audit-sufficient CEP bundles for governance coupling decisions.

3. Instructors MAY propose curriculum or scenario improvements, but changes SHALL only take effect through governance change control and versioning.

---

### G.2 Canon-fidelity operating rules (zero-drift doctrine)

1. Always cite canon. Every lesson, lab, scenario, or exam item MUST point to specific v1.0a sections/pages.

2. No paraphrase drift. If simplifying a concept, instructors MUST restate the canonical rule immediately afterward.

3. No metric invention. SI/HSS v2.0/SCP/CI/RB/AB may be taught and applied, but MUST NOT be redefined or reweighted.

4. Deprecated-term hygiene. Legacy terms may be mentioned only as historical contrast and labeled non-authoritative.

5. Layer integrity is sacred. Never teach or allow a workflow that bypasses Engine mediation or governance constraints.

---

### G.3 Delivery playbook by SETC layer

#### G.3.1 F-Layer delivery (Part II)

Instructor priorities:

Establish shared ontology (intent, constraints, TG, AB/RB, metrics literacy).

Ensure every learner can recite and apply the 10-Stage Engine pipeline in correct order.

Train safe-mode bias: ambiguity → demote / narrow / halt.

Minimum gate to advance learners:

F-Layer quizzes + one guided lab with replayable lineage evidence.

#### G.3.2 A-Layer delivery (Part III)

Instructor priorities:

Emphasize track-specific “blocking failures” early (AB creep for O/P; evidence insufficiency for G; drift in canon delivery for I).

Require TG and constraint work to be deterministic and typed.

Enforce Economic Pass literacy where labs touch budgets.

Minimum gate:

Track labs at target difficulty bands + supervised scenario rehearsal.

#### G.3.3 S-Layer delivery (Part IV)

Instructor priorities:

Use only scenarios authored per Chapter 15 / Appendix D.

Maintain exam-parity in timing, environment, and evidence requirements.

Record flight-hours and outcomes to lineage for CEP use.

Minimum gate:

PASS on required scenario trials with no blocking failures.

#### G.3.4 C-Layer delivery (Part V)

Instructor priorities:

Administer pillars in TES order ( $T \rightarrow P \rightarrow S \rightarrow E$ ), no exceptions.

Proctor integrity consistent with bank rules.

Grade strictly to master rubrics; do not “curve,” “normalize,” or negotiate scores.

Minimum gate:

Track thresholds met and safety-critical pillars PASS per Part V.

---

#### G.4 Lab and scenario supervision standards

##### 1. Environment selection.

Class-T for demos, Class-P for practice, Class-E for evaluation.

AB ceilings and constraints in labs are governance-set; instructors do not self-authorize increases.

##### 2. Checkpoints.

Dry-Run required on AB2+ or RB-prox nodes; omission is auto-FAIL in evaluation contexts.

##### 3. Instructor safe-mode override.

Instructors SHALL invoke safe-mode if candidates attempt:

- a. AB escalation beyond scope,
- b. RB crossing without checkpointing,
- c. constraint suppression, or
- d. non-replayable artifacts.

Overrides MUST be lineage-logged with rationale.

---

## G.5 Grading discipline and inter-rater reliability

1. Rubric lock. Use Appendix F forms verbatim.

2. Blocking failures are non-negotiable. Any blocking failure yields FAIL regardless of other performance.

3. Calibration cadence.

Participate in periodic calibration sets per Chapter 31.

Variance beyond governance tolerance requires remediation and re-calibration.

4. Document everything.

Every score must cite evidence pointers (lineage IDs, artifact IDs, timestamps).

Uncited scores are invalid for CEP.

---

## G.6 CEP packaging responsibilities

1. Every certification or recertification event MUST output a CEP bundle that is reconstructable and complete.

2. Instructor CEP duties:

- a. ensure lineage minima are present,
- b. attach rubrics, verdicts, and rationale memos,
- c. include scenario flight-hours summary,
- d. note any safe-mode overrides or integrity anomalies.

3. If CEP is insufficient, the instructor SHALL issue a PARTIAL verdict and assign remediation, not “best-effort” certification.

---

G.7 Non-punitive covenant and learner safety

1. HSS/SCP-linked telemetry observed during training is readiness evidence only.

2. Instructors SHALL NOT:

rank learners publicly by HSS/SCP,  
transmit individual scores to HR/management for discipline,  
condition employment or compensation on telemetry shifts.

3. Permitted uses:

personalization of training supports,  
AB ceiling caution recommendations to Governance,  
workload redesign suggestions.

4. Any suspected covenant breach MUST be escalated to Governance immediately.

---

G.8 Handling drift, decay, and incident signals in training

1. Instructors MUST teach and enforce the drift vs decay distinction per canonical stability doctrine.

2. When candidates mis-type or ignore stability signals in evaluation:

record as a stability blocking failure if safety-critical,

issue remediation path,

re-test using a stability-invoking scenario addendum.

3. If the training environment itself exhibits drift/decay (tool changes, policy mismatch), pause evaluation and re-pin the environment before resuming.

---

#### G.9 Anti-gaming and integrity response

1. Instructors SHALL assume that any high-stakes assessment attracts gaming attempts.

2. Anti-gaming responses follow a calibrated ladder:

- a. detect,
- b. require evidentiary justification,
- c. retest with variance,
- d. remediate.

3. Punitive escalation beyond certification scope is prohibited unless a safety breach occurred.

---

#### G.10 Instructor recertification and scope maintenance

1. Instructors are subject to Chapter 27 recert cadence and accelerated triggers.



2. Scope expansions (new domains, AB ceilings, lead-examiner authority) require:

new practicum evidence,

calibration deltas, and

Governance authorization.

3. Any material canon update triggers accelerated instructor refresh.

---

#### G.11 Quick checklists (print-ready)

##### Pre-lesson checklist

☐ Canon anchors pinned

☐ Lesson plan uses Appendix B template

☐ Environment class correct

☐ Labs/scenarios sourced from SETC banks

☐ Drift risks and correction phrases ready

##### Pre-exam checklist

☐ TES pillar order confirmed

☐ Proctoring integrity mode set

☐ Rubric forms printed / loaded

☐ Calibration current

☐ CEP export path verified

##### Post-assessment checklist

☐ Blocking failures evaluated

[ ] Scores evidence-cited

[ ] CEP bundle complete

[ ] Remediation assigned for PARTIAL/FAIL

[ ] Non-punitive framing used

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#### Education-Binder SQC Gate Check — Appendix G

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Appendix G delivered.

Gate 2 — v1.0a Canon Supremacy: PASS  
Handbook is an execution aide referencing canon drift constraints, lineage/CEP rules, adoption safety, and stability doctrine without overriding or altering any framework term.

Gate 3 — Canonical Metrics Non-Redefinition: PASS  
No SI/HSS/SCP/CI/RB/AB definitions or thresholds introduced; usage restricted to canon and governance parameters.

Gate 4 — Normative Technical Voice: PASS  
MUST/SHALL/MAY used precisely, no marketing or speculation.

Gate 5 — Mechanistic Testability: PASS  
Operational rules, checklists, and decision ladders are explicit and auditable.

Gate 6 — Lineage Recoverability: PASS  
Instructor duties center on lineage minima, replayability, and CEP packaging sufficiency.

Gate 7 — Drift vs Decay Typing Discipline: PASS  
Stability handling aligns to canon; no alternate doctrine introduced.

Gate 8 — Abuse / Incentive Hardening: PASS  
Non-punitive covenant is binding, with explicit prohibited actions and escalation pathways.

Status: Normative, education-binder change governance record.

Scope rule: This log tracks changes **to SETC** only. Any change that affects SQC enforcement or canonical doctrine requires Governance approval and a delta rationale.

Versioning rule: All policy/overlay version deltas relevant to education **SHALL** be tracked and logged to lineage.

Canon rule: SETC changes **SHALL NOT** override Framework v1.0a canon; if canon changes, SETC must be reviewed and updated under this log.

---

## H.1 Change control categories (binding)

All SETC modifications **SHALL** be classified as one of:

1. **Major (vX.0 → vX+1.0)**

A change that alters any of:

- SETC TOC spine,
- certification pillar ordering (TES),
- track pass thresholds,
- rubric dimension set,
- scenario template requirements, or
- CEP sufficiency doctrine.

Major changes **MUST** include impact analysis and require Governance Body approval.

2. **Minor (vX.Y → vX.Y+1)**

A change that adds or revises instructional content, labs, scenarios, or exam items **without changing**:

- canonical terms/metrics,
- weights/thresholds,
- required pillars, or
- blocker definitions.

Minor changes require Governance-delegated education steward approval.

3. **Patch (vX.Y.Z → vX.Y.Z+1)**

A non-semantic correction (typos, formatting, citation repairs, broken cross-refs) that does not change meaning.

Patch changes **MAY** be approved by I-Accred lead with governance notification.

---

## H.2 Mandatory change-log entry schema (binding)

Every entry **MUST** include:

- **SETC Version:** vX.Y.Z

- **Date (YYYY-MM-DD):**
- **Change Type:** Major / Minor / Patch
- **Summary (≤120 words):** what changed and why
- **Affected Sections:** Part / Chapter / Appendix IDs
- **Canon Impact Statement:**
  - “No canon impact; education mirror only.” OR
  - “Canon delta ingested; SETC updated to match v1.0a.vΔ.”
- **Assessment Impact:**
  - which LOs, labs, scenarios, exam banks, rubrics are affected
- **Evidence / Lineage Pointer:** commit IDs, lineage export IDs, or CEP deltas supporting the change
- **Approval:** Governance Body / Education Steward / I-Accred Lead, with signatory name
- **Effective Date:** when the change becomes binding for delivery/exams
- **Backward Compatibility Note:** whether prior certifications remain valid or require CE/recert updates

Absence of any mandatory field renders the entry non-compliant and blocks release.

---

## H.3 Release and review gates (binding)

1. **Pre-release gate:**  
Any Major or Minor change SHALL be SQC-checked per Appendix P gates before publication. A FAIL blocks inclusion until revised.
  2. **Post-canon-update gate:**  
If Framework v1.0a changes (new vΔ), an education steward SHALL:
    - a. map canon deltas to SETC dependencies,
    - b. issue required SETC Minor/Major updates, and
    - c. log the ingestion here.
  3. **Assessment continuity:**  
Exam banks or scenarios affected by a Minor/Major change MUST be re-calibrated and republished with version bump prior to use.
- 

## H.4 Change log entries

### H.4.1 Initial release

**SETC Version:** v1.0.0

**Date:** 2025-11-21

**Change Type:** Major (initial first-class education binder release)

**Summary:** Initial publication of SETC-v1.0 as a professional certification program aligned to Framework v1.0a canon. Includes Parts I–VI and Appendices A–H. Establishes TES pillar ordering, track curricula, scenario/lab standards, exam blueprints, master rubrics, CE/recert rules, and org deployment path.

**Affected Sections:** All (Parts I–VI; Appendices A–H)

**Canon Impact Statement:** No canon impact; education mirror only. Canon sources pinned to Framework v1.0a.

**Assessment Impact:** Establishes all LOs, labs, scenario banks, exam item templates, and rubrics as baseline for O/P/G/I certifications.

**Evidence / Lineage Pointer:** SETC master compilation lineage export ID: SETC-L<sup>+</sup>-v1.0.0-root (to be populated in repo).

**Approval:** Governance Body — Education Subcommittee (signatory: \_\_\_\_\_).

**Effective Date:** 2025-11-21

**Backward Compatibility Note:** N/A (first release).

---

## H.4.2 Reserved slots for future deltas (normative placeholders)

Use the schema in H.2. Do not remove placeholders; append new entries above them.

**SETC Version:** v1.0.1

**Date:** \_\_\_\_\_

**Change Type:** Patch

**Summary:** \_\_\_\_\_

**Affected Sections:** \_\_\_\_\_

**Canon Impact Statement:** \_\_\_\_\_

**Assessment Impact:** \_\_\_\_\_

**Evidence / Lineage Pointer:** \_\_\_\_\_

**Approval:** \_\_\_\_\_

**Effective Date:** \_\_\_\_\_

**Backward Compatibility Note:** \_\_\_\_\_

**SETC Version:** v1.1.0

**Date:** \_\_\_\_\_

**Change Type:** Minor

**Summary:** \_\_\_\_\_

**Affected Sections:** \_\_\_\_\_

**Canon Impact Statement:** \_\_\_\_\_

**Assessment Impact:** \_\_\_\_\_

**Evidence / Lineage Pointer:** \_\_\_\_\_

**Approval:** \_\_\_\_\_

**Effective Date:** \_\_\_\_\_

**Backward Compatibility Note:** \_\_\_\_\_

**SETC Version:** v2.0.0

**Date:** \_\_\_\_\_

**Change Type:** Major  
**Summary:** \_\_\_\_\_  
**Affected Sections:** \_\_\_\_\_  
**Canon Impact Statement:** \_\_\_\_\_  
**Assessment Impact:** \_\_\_\_\_  
**Evidence / Lineage Pointer:** \_\_\_\_\_  
**Approval:** \_\_\_\_\_  
**Effective Date:** \_\_\_\_\_  
**Backward Compatibility Note:** \_\_\_\_\_

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## Education-Binder SQC Gate Check — Appendix H

Gate 1 — Structural Fidelity to SETC TOC: PASS  
Only Appendix H delivered.

Gate 2 — v1.0a Canon Supremacy: PASS  
Appendix governs SETC deltas only, explicitly disallows overriding canon and requires canon-delta ingestion logging.

Gate 3 — Canonical Metrics Non-Redefinition: PASS  
No SI/HSS/SCP/CI/RB/AB definitions, weights, or thresholds introduced.

Gate 4 — Normative Technical Voice: PASS  
MUST/SHALL/MAY used precisely; no speculative or marketing tone.

Gate 5 — Mechanistic Testability: PASS  
Entry schema, change categories, and release gates are deterministic and auditable.

Gate 6 — Lineage Recoverability: PASS  
Mandatory lineage/commit pointers required for every delta; aligned to policy-delta logging rule.

Gate 7 — Drift vs Decay Typing Discipline: PASS  
No stability doctrine altered; change control is orthogonal.

Gate 8 — Abuse / Incentive Hardening: PASS  
Log forbids non-approved semantic changes and enforces governance sign-off, preventing covert drift.

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