

Step-by-Step Guide to Curriculum Development in HPE

Curriculum development in Health Professions Education (HPE) requires a systematic, aligned approach to ensure that educational activities directly produce competent healthcare professionals. Because patient safety and clinical competence are the ultimate goals, curriculum design in HPE typically flows from institutional identity down to specific, measurable classroom activities.

Here is a practical, step-by-step framework covering the essential definitions, structural alignments, and credit calculations used in modern health professions curricula.

Step 1: Establish Your Vocabulary (Glossary & Definitions)

To ensure a shared language among faculty, external accreditors, and students, you must clearly distinguish between terms that are frequently conflated.

Term	Definition	Practical Example in HPE
Competency	An observable capability of a health professional that integrates knowledge, skills, values, and attitudes. Competencies are durable, transferable, and trackable.	"Demonstrates the ability to perform an independent, structured focused physical examination of the cardiovascular system."
Learning Outcome	A broad statement of what a learner is expected to know, understand, and/or be able to demonstrate <i>after</i> completion of a specific process (e.g., an entire program or a phase). It shifts the focus from the teacher to the learner.	"By the end of the Phase 1 Pre-Clinical years, the student will be able to interpret basic diagnostic imaging and correlate findings with underlying pathophysiology."
Learning Objective	A highly specific, measurable statement of	"By the end of this 2-hour laboratory session, the

Term	Definition	Practical Example in HPE
	what the learner will do <i>during or at the end of a single instructional unit</i> (e.g., a lecture, PBL session, or lab). It typically includes a performance condition and criteria.	student will be able to identify and label the distinct layers of the coronary artery wall under a light microscope without error."

The Core Difference: Outcome vs. Objective

- **Outcomes** are the *destination* (the holistic result of a learning journey).
- **Objectives** are the *milestones* along the road (the specific steps taken to reach that destination).

Step 2: Cascade Intent (How Vision & Mission Drive Outcomes)

A curriculum should never be built in a vacuum. It must be derived through a top-down cascading process called **constructive alignment**. If your curriculum is aligned, an auditor should be able to trace a single multiple-choice question or OSCE station directly back to the university's institutional mission.

1. Institutional Vision & Mission

The university or medical school defines its identity.

Example Mission: "To graduate compassionate physicians who excel in evidence-based rural primary care and community-oriented medical research."

2. Program Learning Outcomes (PLOs) / Graduate Attributes

The mission dictates the specific profile of the graduate. Because the example mission prioritizes rural primary care and research, the PLOs must explicitly reflect this:

- **PLO 1:** Formulate comprehensive management plans for common chronic illnesses prevalent in underserved rural communities.
- **PLO 2:** Design and execute epidemiologic research projects addressing local community health disparities.

3. Course Learning Outcomes (CLOs)

A single course or module (e.g., a 6-week Cardiovascular/Respiratory Module) takes a piece of those PLOs and makes them module-specific:

- **CLO derived from PLO 1:** Diagnose and manage hypertension and asthma in an outpatient or primary care setting.

4. Instructional/Session Objectives

The individual lectures, Problem-Based Learning (PBL) cases, or clinical rotations within that module drill down to the exact mechanics:

- **PBL Session Objective:** List the steps of the renin-angiotensin-aldosterone system (RAAS) and explain how ACE inhibitors alter blood pressure.

Step 3: Define Instructional Time (Contact Hours)

Before assigning credit values to a course, you must calculate exactly how much time students spend in structured educational environments.

- **Contact Hour:** The measure of time spent in direct, structured instruction between a student and a faculty member (or an approved educational platform).
- **The Academic Hour:** In most health science institutions globally, a single "contact hour" is formally defined as **50 minutes** of net instructional time to allow for transitions between classes.

Categorizing Contact Hours in HPE

HPE curricula are diverse, meaning contact hours must be tracked across different instructional modalities:

- **Didactic/Theoretical:** Lectures, interactive large-group sessions, team-based learning (TBL) readiness tests.
- **Practical/Laboratory:** Anatomy dissection, histology microscopy labs, physiology simulations, or communication skills labs.
- **Clinical/Experiential:** Bedside teaching, hospital ward rounds, outpatient clinic attachments, community health field visits.

Step 4: Quantify the Curriculum (Calculating Credit Hours)

A **Credit Hour** is a currency used to weigh the academic value of a course, determine student workload, and facilitate credit transfers between institutions. While exact ratios vary slightly depending on regional accreditation bodies, the standard globally accepted calculation is based on the Carnegie Unit.

The Timetable-to-Credit Conversion Formulas

In practice, when building a curriculum, you start with the scheduled contact hours on your timetable and convert them directly into credit hours using the following formulas based on a standard 15-week semester basis:

Instructional Modality	Standard Conversion Ratio	Practical Conversion Formula
Lectures & Small Groups (PBL/TBL)	1 contact hour per week × 15 weeks = 15 total contact hours per 1 credit	Lecture Credit Hours = (Total Lecture Contact Hours) / 15
Practical Sessions & Labs (Anatomy/Histology)	2 to 3 contact hours per week × 15 weeks = 30 total contact hours per 1 credit	Practical Credit Hours = (Total Lab Contact Hours) / 30
Clinical Rotations & Skills Labs	3 to 4 contact hours per week × 15 weeks = 45 total contact hours per 1 credit	Clinical Credit Hours = (Total Clinical Contact Hours) / 45

Note on ECTS (Europe): If your institution uses ECTS, the calculation is shift-focused on total workload rather than just contact hours. 1 ECTS credit = 25 to 30 hours of total student workload (including self-study and assessment).

Practical Worked Example: Calculating a Module's Credits

Let us calculate the total credit hours for a **4-week Gastrointestinal (GI) Module** in an undergraduate medical program using our direct timetable conversion formulas.

Step A: Tally the Total Contact Hours over the 4 weeks

- **Lectures:** 30 hours total
- **PBL Sessions / Small Group:** 12 hours total (*treated as lecture equivalence due to high cognitive load and prep*)
- **Anatomy/Histology Labs:** 16 hours total
- **Clinical Skill Lab (Simulated Patients):** 12 hours total

Step B: Apply the Timetable Conversion Formulas

1. **Theoretical Component (Lectures + PBL):**
Total Theoretical Contact Hours = 30 hours + 12 hours = 42 hours
Theoretical Credits = $42 / 15 = 2.8$ Credits
2. **Practical Component (Anatomy/Histology Labs):**
Total Practical Contact Hours = 16 hours
Practical Credits = $16 / 30 = 0.53$ Credits
3. **Clinical Component (Clinical Skill Labs):**
Total Clinical Contact Hours = 12 hours
Clinical Credits = $12 / 45 = 0.26$ Credits

Step C: Sum and Round According to Institutional Policy

Total Calculated Credits = $2.8 + 0.53 + 0.26 = 3.59$ Credits

Depending on your university's academic regulations, this module would be officially designated as a **3.5-credit** or **4.0-credit** course.

The Practical "Timetable-to-Credit" Formulas

1. Lectures & Small Groups (PBL/TBL)

Because 1 credit equals 15 total contact hours, you simply divide your total scheduled lecture hours by 15.

$$\text{Lecture Credit Hours} = \frac{\text{Total Lecture Contact Hours}}{15}$$

- **Example:** If your module has 45 hours of scheduled lectures/PBLs:
$$\frac{45}{15} = 3 \text{ Credits}$$

2. Practical Sessions & Laboratories (Anatomy / Histology)

If your institution uses the standard **2:1 ratio** (meaning 2 hours of lab equals 1 hour of lecture credit, or 30 total hours per credit):

$$\text{Practical Credit Hours} = \frac{\text{Total Lab Contact Hours}}{30}$$

- **Example:** If you have scheduled 30 hours of anatomy dissection and histology microscope labs:
$$\frac{30}{30} = 1 \text{ Credit}$$

3. Clinical Rotations & Skills Labs

If your institution uses a **3:1 ratio** (meaning 3 hours of clinical work equals 1 hour of lecture

credit, or 45 total hours per credit):

Clinical Credit Hours= $\frac{\text{Total Clinical Contact Hours}}{45}$

- **Example:** If students spend 90 hours at the hospital bedside or in the simulation lab:
 $\frac{90}{45} = 2$ Credits