



CHALLENGE STUDIO · PILOT PROOF · CONFIDENTIAL

The first working proof: Hamilton Southeastern's career-and-technical pathways mapped to the real occupations, industries, and employer demand of Central Indiana — and turned into countable, simulated work-based learning.

3,848

HSE CTE students (2025-26)

12

career clusters offered

303

HSE students in WBL (Perkins 5S3)

5/5

other district catalogs located

From "here's the labor market" to "here's your courses, mapped to it"

This pilot takes Hamilton Southeastern — chosen because we already hold their course guide — and demonstrates the core intellectual property of the whole initiative: a working **crosswalk linking every CTE pathway HSE teaches to the real occupations (SOC), industries (NAICS), and live local demand** those courses point toward, then converts the highest-demand cells into authentic simulated challenges.

THE CHAIN, DEMONSTRATED END-TO-END

HSE course → Indiana career cluster → SOC occupation → NAICS industry → Hamilton County / MSA demand (jobs, wage, growth) → look-alike simulated challenge. Build it once for HSE; it ports to all six districts plus TPI by swapping the catalog.

HSE offers CTE across **12 of Indiana's career clusters** — Health Science, Manufacturing, Architecture & Construction, IT, Business, Finance, Marketing, Agriculture, Education, Arts/AV/Communications, Human Services, and STEM/Engineering — with 60 unique courses and strong work-based-learning growth (303 Perkins-counted WBL participants in 2025-26, of whom 297 met the 75-hour threshold).

Sources: HSEHS Course Guide 2026-27; IDOE CTE Concentrator + Perkins 5S3 data; occupation_index.json (Lightcast Q1 2026). Crosswalk data: hamilton-implementation/knowledge-bases/hpl/challenge-studio-pilot/hse_cte_soc_naics_crosswalk_v1.json

HSE pathways → occupations → local demand

Each HSE pathway resolves to its lead occupations and the real Hamilton County demand behind them. Demand metrics are county-level employment, median wage, and projected growth.

HSE PATHWAY	CLUSTER	LEAD OCCUPATION (SOC)	HC JOBS	MEDIAN WAGE	GROWTH	SIGNAL
Nursing & Biomedical	Health Sci	Registered Nurses (29-1141)	2,726	\$83,941	+25.8%	high
Medical Assisting / CNA / EMT	Health Sci	Nursing Assistants (31-1131)	1,391	\$40,427	+17.0%	volume
Engineering (PLTW)	STEM	Electrical Engineers (17-2071)	231	\$115,359	+46.7%	growth
Precision Machining	Mfg	Industrial Engineers (17-2112)	262	\$108,454	+28.1%	high
Construction Trades & Welding	Arch & Const	Constr. Supervisors (47-1011)	1,107	\$83,940	+48.7%	growth
Software Development	IT	Software Developers (15-1252)	1,624	\$113,967	+7.5%	high
Cybersecurity	IT	Info Security Analysts (15-1212)	373	\$101,337	+153.1%	growth
Business Management	Business	Gen & Ops Managers (11-1021)	3,481	\$129,659	+21.6%	volume
Accounting & Finance Academy	Finance	Accountants & Auditors (13-2011)	2,321	\$87,026	+27.0%	volume
Marketing & Entrepreneurship	Marketing	Market Research Analysts (13-1161)	1,435	\$69,228	+46.5%	growth
Early Childhood / Cadet Teaching	Education	Preschool Teachers (25-2011)	947	\$36,311	+31.4%	volume
Agri-Science / Vet / Precision Ag	Agriculture	Vet & Ag Scientists (regional)	—	—	—	thin data

Demand from occupation_index.json (Hamilton County, Lightcast Q1 2026). Agriculture flagged: county-level series thin; use MSA/state demand + acquisition. Full SOC sets (2-3 per pathway) and NAICS + anchor employers in the crosswalk JSON.

Real local problems, generated from the crosswalk

Each challenge is modeled on an occupation/industry that genuinely exists here, sized for a high-level CTE concentrator or capstone class, and designed to be countable simulated WBL.

Cutting infant-room nurse turnover at a Fishers care facility

CH-HSE-HEALTH-01

Pathway: Nursing & Biomedical · Anchor: RN (29-1141) · Employers: Ascension St. Vincent / IU Health / Riverview

The problem: A local care facility is losing infant/NICU-adjacent RNs; fill time exceeds 30 days and nurse-to-patient ratios are slipping.

Student task: Diagnose turnover drivers from a simulated staffing/exit dataset, model the cost of vacancy, and present a retention + scheduling redesign to a "nurse manager" mentor panel.

✓ Counts toward 75-hr WBL · Employment Seal: healthcare operations + professional communication

Yield problem on a medical-device line

CH-HSE-MFG-01

Pathway: Engineering / Precision Machining · Anchor: Industrial Engineers (17-2112) · Employers: Marian Inc. / Viant look-alike

The problem: A Hamilton County medical-device manufacturer has a 6% scrap rate on a precision component, threatening an OEM contract.

Student task: Run root-cause analysis on a simulated production dataset, propose a process change, and quantify the cost/quality tradeoff for a "plant leadership" review.

✓ Counts toward 75-hr WBL · Employment Seal: process improvement + engineering reasoning

Incident response at a Carmel financial-services firm

CH-HSE-CYBER-01

Pathway: Cybersecurity · Anchor: Info Security Analysts (15-1212) — fastest-growing local IT role (+153%)

The problem: A look-alike Carmel wealth-management firm suffers a phishing-driven account-takeover attempt; leadership needs a response + prevention plan.

Student task: Triage a simulated incident timeline, recommend containment steps, and build an employee anti-phishing training plan presented to a "CISO" mentor.

✓ Counts toward 75-hr WBL · Employment Seal: incident triage + risk communication

Should this Noblesville small business open a second location?

CH-HSE-FIN-01

Pathway: Business / Finance / Marketing · Anchor: Management Analysts (13-1111) + Accountants (13-2011) · OneZone-member look-alike

The problem: A profitable local small business is weighing a second location and needs a go/no-go analysis.

Student task: Build a simple pro-forma from simulated financials, assess market demand, and deliver a recommendation memo + pitch to an "owner" mentor.

✓ Counts toward 75-hr WBL · cross-pathway capstone (business + finance + marketing)

Why this counts — and what's next

COMPLIANCE ALIGNMENT

Indiana's Class-of-2029 diploma requires **75 hours of work-based learning** and explicitly permits **simulated** experiences; the **Employment Readiness Seal** rewards locally-determined skills. Every challenge above is authored to be documented, countable WBL that exercises the real skills of its target occupation. HSE already has 297 students meeting the 75-hour threshold — the Challenge Studio scales that capacity to the full CTE enrollment.

Catalog acquisition — all five located (public)

DISTRICT	YEAR	FORMAT	STATUS
Carmel Clay — Carmel HS	2026-27	PDF (echalk)	Verified — downloadable
Noblesville — Noblesville HS	2026-27	Google Doc	Verified
Westfield Washington — Westfield HS	2026-27	Google Site (PDFs)	Verified page
Hamilton Heights — Hamilton Heights HS	2025-26	Google Doc	Verified
Sheridan — Sheridan HS	2026-27	Joomla → PDF	Page verified

URLs in the crosswalk JSON (catalog_acquisition_status). TPI master guide + HSE already held — TPI is treated as the 7th member district.

Recommended next moves

- **Ingest the five located catalogs** and extend the crosswalk to all six districts + TPI (the spine already works — it's a catalog swap).
- **Stand up the portal MVP** (V4 Track B) with the HSE challenge set as the seed library.
- **Open an HSE pilot conversation** — fee-for-service under current CEO authority, ahead of the August 2026 Board pricing decision.
- **Early IDOE touch** to confirm the simulated-WBL documentation satisfies the seal — the single biggest adoption de-risker.
- **Mirror to the IBRC demo** (Hoosier County synthetic tenant) per standing rule.