Industrial Site Design

Building an Education Hub

The hub is structured as a mini-course with five modules. Each supporting page links up to the module pillar and across to its siblings within the section.

Education Hub Home

Example URL: /education/system-design/integration-requirements

1 Base Knowledge	2 Scientific Principles	3 Engineering Application	4 Performance Validation	5 System Design
1.1 What is X?	2.1 Core scientific principle	3.1 How to choose the right X	4.1 Measurement theory	5.1 Equipment configuration principles
1.2 How does X work?	2.2 Supporting principles and theories	3.2 Understanding X specifications	4.2 Data collection methods	5.2 Integration requirements
1.3 Main components of X	2.3 Applied technical concepts	3.3 Environmental and operating considerations	4.3 Analysis techniques	5.3 Scaling considerations
1.4 Types of X	2.4 System behaviors and limitations	3.4 Basic engineering calculations	4.4 Error assessment	5.4 Efficiency factors
1.5 Common applications of X	2.5 Key technical relationships	3.5 Design considerations and tradeoffs	4.5 Quality control principles	5.5 Future-proofing concepts

What this project is

A technical education hub with original, citable content to earn backlinks from the people teaching the field such as universities, government and public-sector programs, and the trade organizations that train the workforce. It's structured as a mini-course in the fundamentals of an industry, built like a syllabus, organized so a researcher, an educator, or a working engineer can find the right answer at the right moment in their own work.

Adapting the framework

Five sections is a default, not a rule. The fixed parts are the principles – from definitions to principles to application. Pages should always be educational, not promotional, and each page should fit within the course context. Everything else flexes. Some industries might warrant a sixth section for regulatory context, while others collapse validation and system design into one. Build what it takes to actually teach students in your field.

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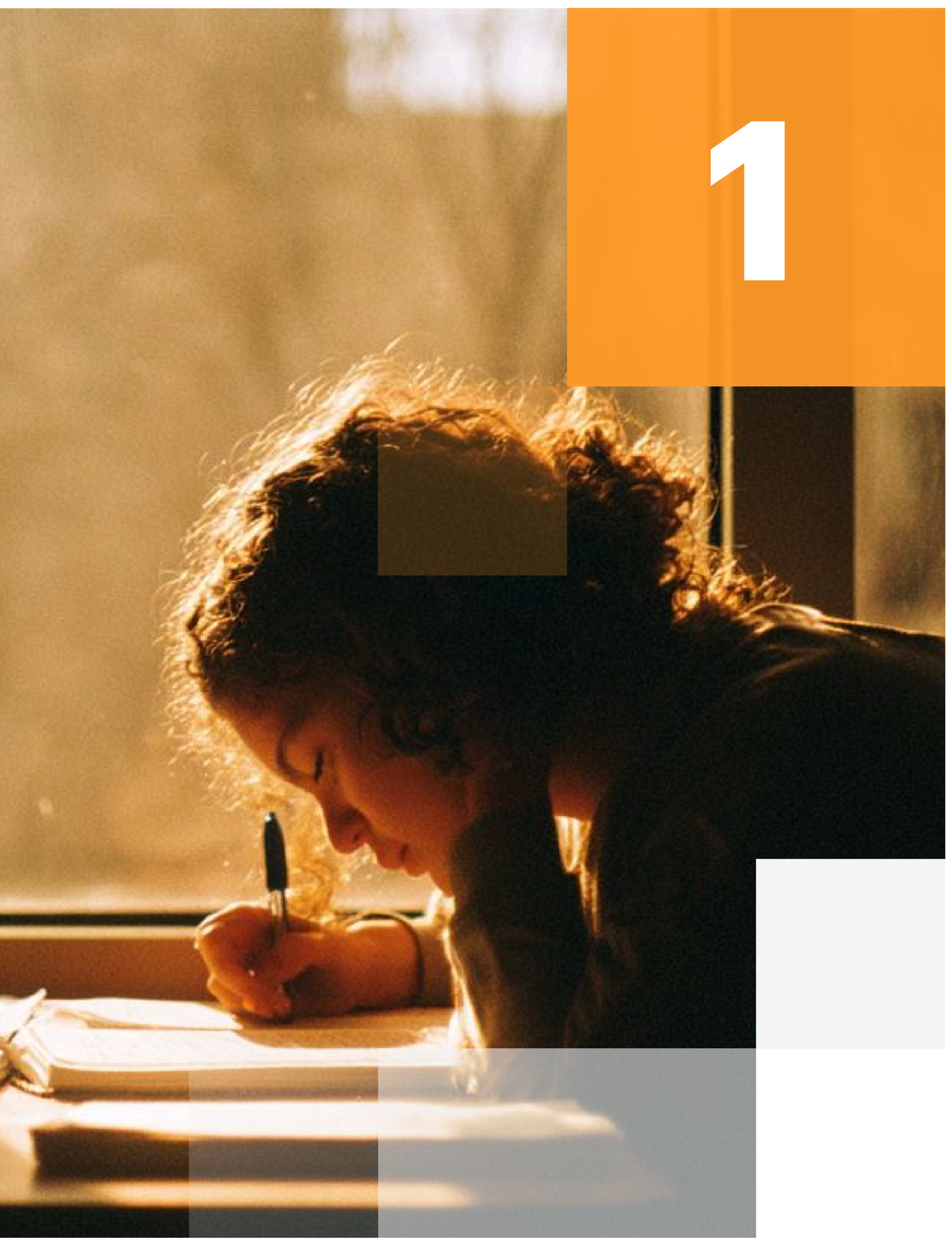

Base Knowledge

Establish fundamental understanding and vocabulary for students encountering the topic for the first time

What this section should do:

Pages in this section read like the first chapter of a textbook. Definitions are precise without being dense. Examples are concrete. The reader finishes each page able to use the vocabulary correctly in a sentence. This is the section most likely to earn a link from a course syllabus or a glossary, so clarity beats comprehensiveness.

RECOMMENDED PAGES

1.1	What is X?	Clear, concise definition • Historical context • Basic purpose and function • Primary benefits and advantages
1.2	How does X work?	Basic operating principles • Core mechanisms • Fundamental processes • Basic system operation
1.3	Main components of X	Key parts identification • Component functions • System architecture • Component relationships
1.4	Types of X	Major categories • Classification systems • Comparison of types • Selection criteria overview
1.5	Common applications of X	Primary use cases • Industry applications • Typical implementations • Real-world examples

WATCH OUT FOR

Marketing language. The fastest way to lose a citation is to let product names, brand voice, or sales framing into a definitional page. A teacher will not link to a page that reads like a brochure, even if your explanation is correct.

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Scientific Principles

Teach the fundamental science and physics behind the technology to engineering students and tech professionals

What this section should do:

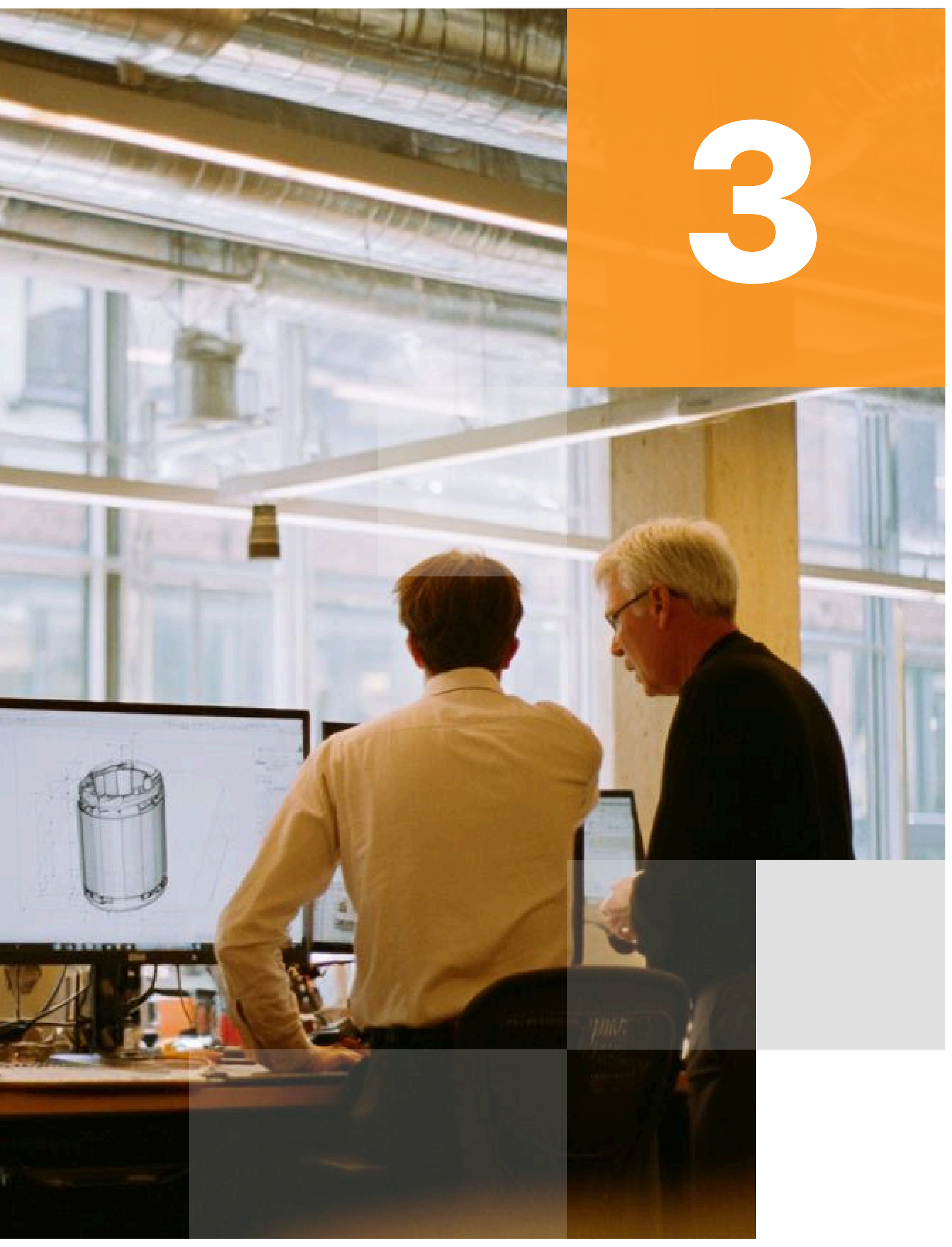
Pages in this section show the work. Equations are stated clearly with variables defined. Physical relationships are illustrated, not just described. A reader who already understands the relevant principle should still find value in seeing it applied to your specific domain. This is the section most likely to be cited in a research paper or a technical course.

RECOMMENDED PAGES

2.1	**Core scientific principle**	Core scientific concept • Mathematical foundations • Theoretical framework • Practical implications
2.2	**Supporting principles and theories**	Supporting scientific concepts • Related theories • Physical laws • Technical relationships
2.3	**Applied technical concepts**	Applied principles • Technical parameters • Operating characteristics • Performance factors
2.4	**System behaviors and limitations**	Advanced concepts • System behaviors • Technical limitations • Performance boundaries
2.5	**Key technical relationships**	Critical relationships • Mathematical models • Performance curves • System interactions

WATCH OUT FOR

Borrowed diagrams. If you reuse figures from textbooks or other sites, the page becomes uncitable for the same reason that page already is. Original diagrams and videos, even basic ones, are what make this section linkable.



Engineering Application

Bridge theoretical knowledge with practical engineering decisions for design engineers applying the technology

What this section should do:

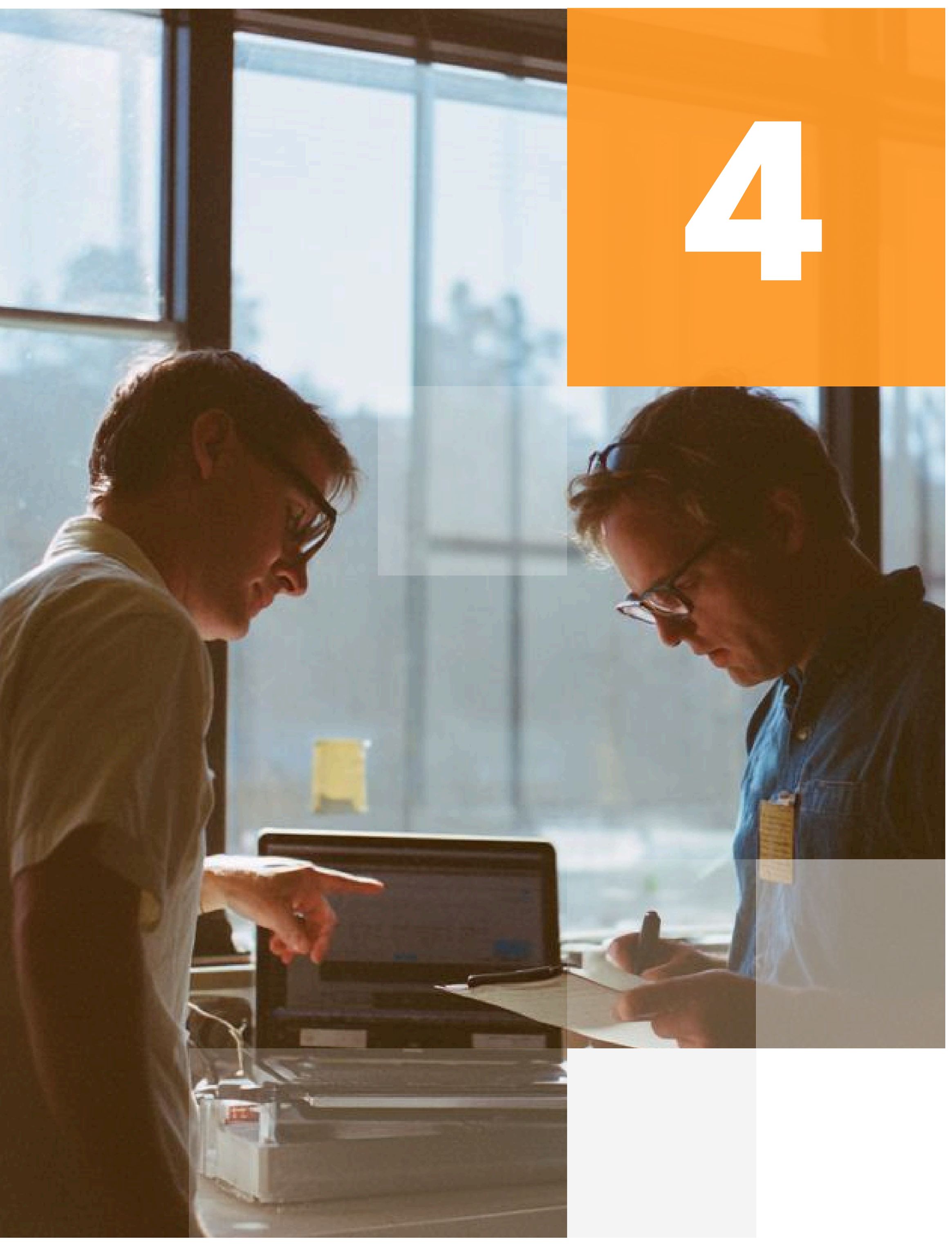
Pages in this section answer the questions an engineer actually asks during a project. They include real numbers, real ranges, real tradeoffs. They acknowledge where decisions are constrained by cost, code, or physics. This is the section most likely to be cited from technical training programs and continuing education materials.

RECOMMENDED PAGES

3.1	**How to choose the right X**	Selection criteria • Application requirements • Decision frameworks • Evaluation methods
3.2	**Understanding X specifications**	Technical specifications • Performance metrics • Rating systems • Compliance requirements
3.3	**Environmental and operating considerations**	Operating conditions • Environmental factors • Protection requirements • Maintenance implications
3.4	**Basic engineering calculations**	Sizing calculations • Performance equations • Capacity planning • Efficiency calculations
3.5	**Design considerations and tradeoffs**	Design limitations • Performance tradeoffs • Cost considerations • Risk assessment

WATCH OUT FOR

Recommending your own products. A selection page that conveniently concludes you offer the perfect solution stops working as a teaching resource. Set your bias aside and let your other product pages do the selling.



Performance Validation

Establish methods for proving and quantifying performance for engineers and professionals responsible for verification

What this section should do:

Pages in this section reflect how testing is actually done. Not idealized procedures, but the methods, instrumentation, and documentation a working lab would use. Standards are referenced by name and number. Sources of error are named and quantified where possible. This is the section most likely to be cited in lab manuals, calibration documentation, and quality engineering coursework.

RECOMMENDED PAGES

4.1	**Measurement theory**	Measurement principles • Testing methodologies • Instrumentation basics • Standards and calibration
4.2	**Data collection methods**	Testing procedures • Data acquisition • Sampling methods • Documentation requirements
4.3	**Analysis techniques**	Data analysis methods • Performance calculations • Statistical methods • Results interpretation
4.4	**Error assessment**	Error sources • Uncertainty analysis • Accuracy and precision • Validation methods
4.5	**Quality control principles**	Quality standards • Control methods • Testing protocols • Acceptance criteria

WATCH OUT FOR

Vague technical claims. Name the standard by number. Quote the temperature range. State the exact tolerance. The resource with specific numbers is the one most worth citing, not the one with vague adjectives.

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System Design

Address real-world implementation challenges and solutions for system designers and project engineers responsible for bringing the technology into production.

What this section should do:

Pages in this section feel like institutional knowledge written down – the kind of guidance an experienced engineer gives a junior one. They cover the things that aren't in the textbook but matter on the project. This is the section most likely to be cited in capstone projects, internship handbooks, and continuing professional education.

RECOMMENDED PAGES

5.1	**Equipment configuration principles**	System layout • Setup requirements • Installation guidelines • Configuration options
5.2	**Integration requirements**	System interfaces • Communication protocols • Control systems • Software requirements
5.3	**Scaling considerations**	Capacity planning • System expansion • Performance scaling • Growth limitations
5.4	**Efficiency factors**	Performance optimization • Resource utilization • Operating efficiency • Cost effectiveness
5.5	**Future-proofing concepts**	Technology trends • Upgrade paths • Adaptability considerations • Long-term planning

WATCH OUT FOR

Advice without context. Use examples to show how decisions get made, not to prescribe answers. Aim for judgment the reader can apply elsewhere – enough specificity to be useful without your examples becoming rules.

Why It Works

Good reference content earns backlinks from .edu and .gov sites because it explains the field better than what the reader would otherwise create themselves.

What makes this framework especially good for SEO is the systematic approach, with five sections and 25 pages engineered to span the full range of questions an engineer might ask, from "What is it?" through "How do I install it at scale?" The end-to-end scope is what lets the hub connect with every audience in your industry teaching, learning, applying, or validating the technology you build.

High-Value Content Types

Formulas and equations	Troubleshooting guides	Step-by-step walkthroughs	Materials and process references
Calculators and sizing tools	Standards and compliance	Design Resources	Configuration and selection guides

Respected Referrers

- **Academic research**
  Peer-reviewed papers and graduate theses
- **Course curriculum**
  Syllabuses and required reading for engineering programs
- **Online lessons**
  Tutorials, video courses, and instructional blog posts
- **University resource pages**
  Department hubs, library guides, and faculty reading lists
- **Government training**
  Agency training materials and technical documentation
- **Professional certification**
  PE exam prep and continuing education coursework
- **Industry publications**
  Trade magazines, association newsletters, and tech bulletins

CONTENT CONSIDERATIONS

Make it navigate like a course syllabus

Most readers will enter in the middle, not the start. Every page should make three things obvious at a glance: that it is part of a series, where the reader is in it, and where they can go next. The structure only works if the navigation tells the reader the structure exists.

Keep it neutral and educational

A course gets adopted because it teaches the field, not the vendor. It's already on *your* website so keep brand, product names, and sales framing out of this section. The neutrality is what makes this resource citable or not.

Deliver your own perspective

A mini-course generated by an AI offers nothing the reader can't find elsewhere. One that includes original diagrams, data from your experience, and examples from real customers is the one that will command actual authority.

Protect the backlinks you collect

A citation from a university or government website takes years of compounding effort to earn – and seconds to break. Once a page is cited, its URL becomes load-bearing. Organize it well up front, preserve the slugs, and resist the urge to restructure.