LaTeX lecture notes to accessible HTML

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What this does

This workflow turns LaTeX lecture notes into web pages that look close to the PDF and are built to pass the YuJa Panorama accessibility check in Brightspace. Everything runs on your own computer; your notes are never uploaded anywhere until you put the finished pages on Brightspace yourself.

You keep writing ordinary LaTeX (`$...$`, `align`, `\cref`, bibliographies). After a one-time setup, converting is one double-click, and the result is one ZIP file per document, ready to upload.

The conversion is done by BookML, a free tool by Vincenzo Mantova built on LaTeXML. It runs inside a container, a sealed copy of Linux with TeX Live and everything else preinstalled, so nothing needs to be installed piece by piece. A small kit of files, described below, adds the fixes YuJa asks for.

One-time setup

You do this once per computer. It takes about half an hour, most of it waiting for downloads, and needs roughly 6 GB of free disk space.

Step 1: install the container software

System	What to install	Notes
Windows 10 or 11	Docker Desktop	Needs administrator rights once. Restart, open Docker Desktop, and accept the terms of use.
macOS	OrbStack	On a macOS version Apple no longer supports, try the legacy version.
Linux	Docker or Podman from your distribution	Nothing else is needed.

Optional on Windows, for faster conversions: before installing Docker Desktop, open PowerShell as administrator, run `wsl --install`, and restart.

Step 2: download BookML

Open PowerShell (Windows) or Terminal (macOS, Linux), paste this line, and press Enter:

```
docker pull ghcr.io/vlmantova/bookml:latest
```

This downloads about 4.6 GB and is the only step that needs a fast connection. On Linux with Podman, type `podman` in place of `docker`.

Step 3: get the kit

Save the kit ZIP that came with this guide and unzip it somewhere you can find it again. You will copy its contents into each notes folder you want to convert.

Preparing your notes folder

Copy everything inside the kit folder into the folder that holds your notes, next to your main `.tex` file. You do this once per notes folder.

Kit file	What it is for
`convert.bat`	Windows launcher: double-click to convert
`convert.command`	macOS launcher: double-click to convert
`convert.sh`	Linux launcher: run `./convert.sh` in a terminal
`a11y-kit/`	Two helper scripts the launchers call; no need to open them
`bmluser/`	Styling for the HTML version
`preamble.tex`	Shared preamble that works for both PDF and HTML

Your main file should load the shared preamble and nothing else before `\begin{document}`:

```
\documentclass{book}
\input{preamble}
\begin{document}
\input{chapters/chapter1}
\input{chapters/chapter2}
\end{document}
```

Every `.tex` file in the folder that contains `\documentclass` is converted to its own ZIP. Chapter files pulled in with `\input` can live in subfolders.

If you use your own preamble instead, add `\usepackage{bookml/bookml}` to it and expect some trial and error: packages that draw or decorate (TikZ, tcolorbox) are the usual trouble. The shared preamble shows how to load them for the PDF only.

Converting

Make sure Docker Desktop (or OrbStack) is running, then start the launcher for your system: double-click `convert.bat` on Windows or `convert.command` on macOS, or run `./convert.sh` on Linux. The first time on macOS, right-click the file and choose Open so the system lets it run.

A window shows three steps as they happen:

1. **Preparing.** Your notes are copied to a working folder, `_build_html`. In the copies only, multi-line equations (`align`, `gather` and similar) are rewritten as single equations, because the converter would otherwise turn them into tables that YuJa flags. Your own files are never changed.
2. **Converting.** BookML builds the web pages. This is the slow step: allow about five minutes per hundred pages the first time. Later runs redo only the documents that changed.
3. **Repairing.** Table header cells are labelled, captioned tables get a real HTML caption, and any equation still laid out as a table is marked as layout only.

When it finishes, the `html-output` folder holds:

- one ZIP per document, with the same name as its `.tex` file, ready for Brightspace;
- `accessibility-report.txt`, listing what was repaired and anything that still needs fixing in the LaTeX source, such as images without alternative text.

The conversion itself runs with the network switched off, so nothing in your notes can leave the computer during it.

Uploading to Brightspace

1. Go to Course Admin → Manage Files → New Folder and create a folder for the document.
2. Upload the ZIP from `html-output` into that folder and select Unzip.
3. Go to Content → Add Module and create a module for the lecture.
4. Choose Upload/Create → Add from Manage Files and select `index.html`.
5. Open the page and check its YuJa Panorama score. Fix what it reports in the LaTeX source, convert again, and replace the files.

Passing the checker is not the whole of accessibility. Compare the result with your institution's accessibility policy, and if you can, listen to one section with a screen reader.

Writing LaTeX that converts cleanly

The kit repairs what can be repaired automatically. These habits take care of the rest; the report file tells you where they were missed.

What	Do this	Why
Figures	`\includegraphics[alt={Graph of the error against step size}]{fig1}`	Every image needs alternative text
TikZ pictures	Put `\bmlDescription{...}` directly after `\end{tikzpicture}`, with no space between	Same requirement; TikZ pictures become images
Tables	Put every `tabular` inside a `table` environment with a `\caption`, and give it a header row	Checkers require a caption and header cells
Table layout	Avoid merged cells and nested tables	Screen readers cannot follow them
Numbered multi-line equations	Use at most one `\label` per `align` block	A block with several labels cannot be merged into one equation and stays a table
Spacing	Avoid `\vspace`, `\hspace` and manual line breaks	They fight the page structure; use the CSS files in `bmluser` for special spacing
Colour	Do not rely on colour alone, and avoid light colours for text	Text needs a contrast of at least 4.5 to 1
Preamble	Keep one shared preamble for all your	A macro that misbehaves in HTML is

What	Do this	Why
	documents	then fixed in one place

A numbered `align` block gets one equation number in the HTML where the PDF has one per line. Cross-references stay correct within each version.

More examples are in the BookML manual.

Optional helpers

- **Handwritten notes to LaTeX.** Gemini or Copilot can transcribe a scan with the prompt below. Check the result line by line, since these tools still invent content. pix2text is a more literal alternative.
- **Descriptions for complex figures.** Texas A&M publishes a Gemini tool for long image descriptions.

```
Convert the attached file to LaTeX code. The handwritten title is the LaTeX section
name. Put definitions, theorems, and examples in appropriate amsthm environments.
Include no preamble so I can insert it into my master file. Edit sentences and flow,
but preserve all math. Ignore tables, diagrams, and figures.
```

Troubleshooting and updating

Symptom	What to do
"Docker is installed but not running"	Open Docker Desktop or OrbStack, wait until it reports that it is running, and start the launcher again
"The a11y-kit folder is missing"	Copy the whole kit into the notes folder, not only the launcher
A document is listed under NOT CONVERTED	LaTeX stopped with an error. Check that the PDF compiles on its own, then look at the log files in `_build_html`
Results look stale or odd after many changes	Delete the `_build_html` folder and convert again; this forces a full rebuild
The window closes or nothing happens on Windows	Move the notes to a folder on the computer itself; network drives cannot be used
YuJa still flags something	Read `accessibility-report.txt` first; it names the document and the kind of problem

The two working folders, `_build_html` and `html-output`, can be deleted at any time. Neither needs to be backed up.

Updating BookML

The downloaded copy of BookML never updates by itself. To update, run the download line from the setup again:

```
docker pull ghcr.io/vlmantova/bookml:latest
```

After an update, delete `_build_html`, convert one document, and check it in YuJa before converting the rest.