

CEE6501 — Lecture 7.3

Miscellaneous Extra Topics

Agenda

Part 1 — Discuss Week 7 Homework

Part 2 - Adding VS Code Extension

Part 3 - Midterm Results Overview

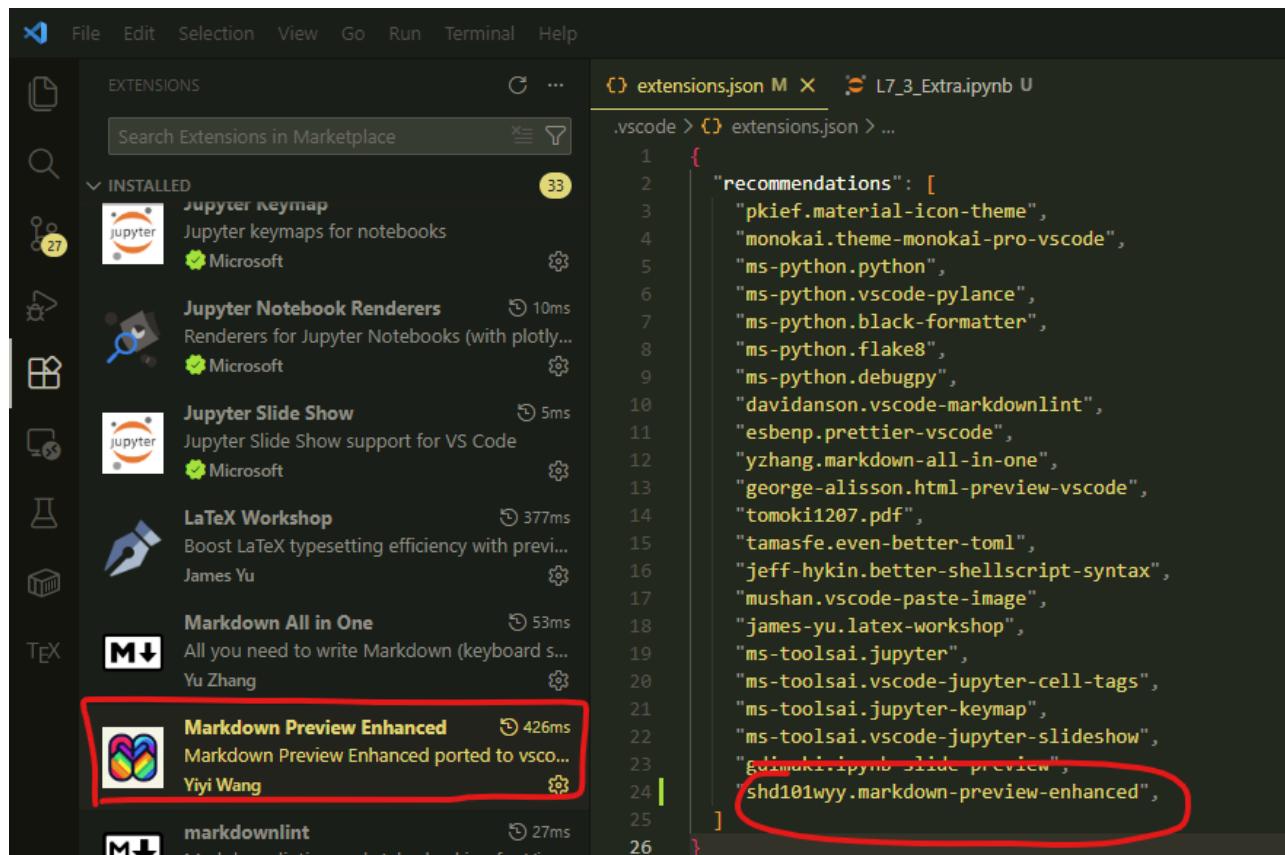
Part 4 - Discuss Feedback Quiz

Part 1 - Discuss Week 7 Homework

Part 2 - Markdown Preview Enhanced

Install VS-code Extension

Markdown Preview Enhanced has been added to the `extensions.json` file



The screenshot shows the VS Code interface with the Extensions sidebar open. In the sidebar, the "INSTALLED" section is expanded, showing several extensions: Jupyter Keymap, Jupyter Notebook Renderers, Jupyter Slide Show, LaTeX Workshop, Markdown All in One, and Markdown Preview Enhanced. The "Markdown Preview Enhanced" extension is highlighted with a red box. In the main editor area, the file `extensions.json` is open, displaying its contents. A red circle highlights the recommendations array in the JSON code.

```
1  {
2      "recommendations": [
3          "pkief.material-icon-theme",
4          "monokai.theme-monokai-pro-vscode",
5          "ms-python.python",
6          "ms-python.vscode-pylance",
7          "ms-python.black-formatter",
8          "ms-python.flake8",
9          "ms-python.debugpy",
10         "davidanson.vscode-markdownlint",
11         "esbenp.prettier-vscode",
12         "yzhang.markdown-all-in-one",
13         "george-alisson.html-preview-vscode",
14         "tomoki1207.pdf",
15         "tamasfe.even-better-toml",
16         "jeff-hykin.better-shellscrip-syntax",
17         "mushan.vscode-paste-image",
18         "james-yu.latex-workshop",
19         "ms-toolsai.jupyter",
20         "ms-toolsai.vscode-jupyter-cell-tags",
21         "ms-toolsai.jupyter-keymap",
22         "ms-toolsai.vscode-jupyter-slideshow",
23         "guiluoki.ipynb-slide-preview",
24         "shd101wyy.markdown-preview-enhanced",
25     ]
26 }
```

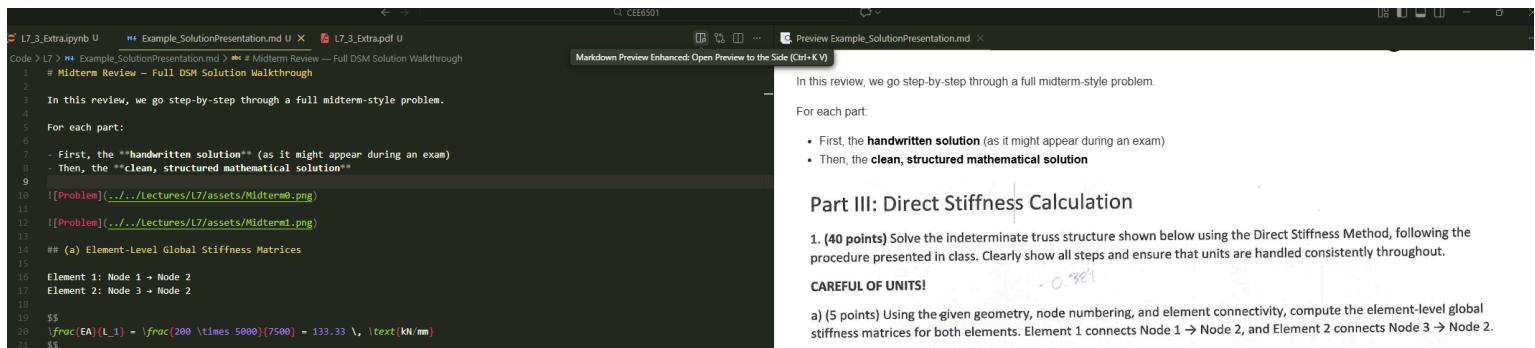
Open Enhanced Preview

Open a markdown file. For example, the `Example_SolutionPresentation.md` file in the `Code\L7` Folder.

Click the preview button top right

or

`Ctrl + Shift + P`
Markdown Preview Enhanced: Open Preview



```

L7_3_Extra.ipynb  Example_SolutionPresentation.md  L7_3_Extra.pdf
Code > L7 > Example_SolutionPresentation.md > # Midterm Review — Full DSM Solution Walkthrough
1 # Midterm Review - Full DSM Solution Walkthrough
2
3 In this review, we go step-by-step through a full midterm-style problem.
4
5 For each part:
6
7 - First, the **handwritten solution** (as it might appear during an exam)
8 - Then, the **clean, structured mathematical solution**
9
10 ![(Problem)](../../Lectures/L7/assets/Midterm0.png)
11 ![(Problem)](../../Lectures/L7/assets/Midterm1.png)
12
13 ## (a) Element-Level Global Stiffness Matrices
14
15 Element 1: Node 1 → Node 2
Element 2: Node 3 → Node 2
16
17 $$
18
19 $ \frac{EA}{L_1} = \frac{200 \times 5000}{7500} = 133.33 \text{ N/mm} $
20
21 $$
22

```

Markdown Preview Enhanced: Open Preview to the Side (Ctrl+K)

In this review, we go step-by-step through a full midterm-style problem.

For each part:

- First, the **handwritten solution** (as it might appear during an exam)
- Then, the **clean, structured mathematical solution**

Part III: Direct Stiffness Calculation

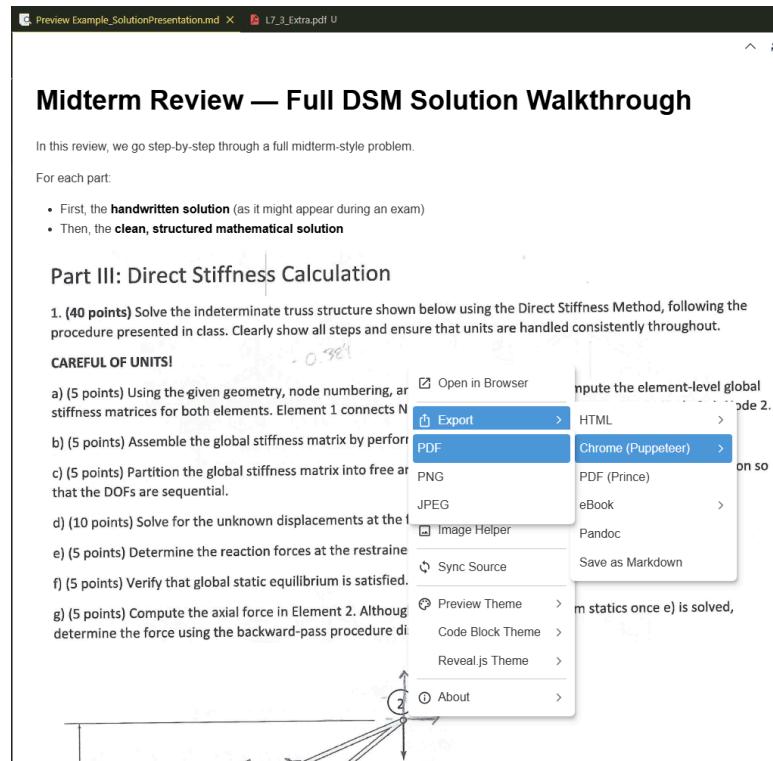
- (40 points) Solve the indeterminate truss structure shown below using the Direct Stiffness Method, following the procedure presented in class. Clearly show all steps and ensure that units are handled consistently throughout.

CAREFUL OF UNITS!

- (5 points) Using the given geometry, node numbering, and element connectivity, compute the element-level global stiffness matrices for both elements. Element 1 connects Node 1 → Node 2, and Element 2 connects Node 3 → Node 2.

Export to PDF

right click -> Export -> Chrome (Puppeteer) -> PDF



Find Exported PDF

The PDF should be saved in the same location as the .md file

Part 3 - Midterm Results Review

Summary

- **Highest score:** 87
- **Lowest score:** 41
- **Class average:** 67

After reviewing the distribution and overall difficulty of the exam:

All students received +15 points added to their midterm score.

This adjustment better aligns the results with course expectations.

Review the DSM Question

- Full midterm solution posted on canvas.
- Today Go through the DSM problem step by step
- Please carefully review:
 - Element stiffness formulation
 - DOF ordering and mapping
 - Assembly into the global system
 - Application of boundary conditions
 - Solving the reduced system

Part 4 - Discuss Feedback Quiz